Virginia Medical Monthly

Vol. 74, No. 6.
WHOLE No. 1140.

RICHMOND, VA., JUNE, 1947

$2.00 A YEAR
25 CENTS A COPY

SYMPOSIUM ON GENERAL PRACTICE

PEDIATRIC GOALS FOR THE GENERAL PRACTITIONER*

BASIL B. JONES, M.D.,
Richmond, Virginia.

A large part of pediatric practice today is concerned with prevention of disease and for this part the general practitioner is in a peculiarly favorable position. He carries the mother through the pregnancy and so should be able to detect diseases which might harm the coming child as well as maternal abnormalities which might interfere with the birth. He can point to errors in nutrition and living, and help the mother develop proper attitudes towards nursing and caring for her child. These things are highly important for the mother and baby, and the general practitioner, who will carry on the care of the child later, will find this task facilitated by his earlier preventive treatment.

Nature attempts to provide the best possible nourishment for the new born infant, but now rarely succeeds in delivering the goods. A good many causes for this failure are apparent: Many mothers say frankly that they don't want to nurse their babies, and others rationalize with excuses that are more or less valid. Some mothers have very little milk and others have deformed nipples so that nursing is impossible. The separation of mothers and babies as practiced in hospitals tends to relieve the mother of her feeling of responsibility at the time this feeling should be strongest and when mother and babe would naturally be together becoming acquainted and getting the mother's breasts to functioning. Instead, it is too easy for mother, doctor, and nurse to follow the usual routine of New Born formula on the second day, and after a more or less perfunctory attempt at breast feeding, give up in favor of the formula. The fact that nature's plan for nourishing the baby is often flaunted needlessly, apparently causes little concern to too many physicians and nurses these days. It is this situation, which often affronts the convictions of the pediatrician, but nevertheless constitutes the primary reason for his specialty that calls him to the case. If he values harmony and good will more than airing his views, he will get to work quietly and try again to distort cow's milk into a formula which can be handled by the infant's digestive tract. The general practitioner should average better at breast feeding in his practice than the 10 to 20 per cent which often pertains in hospitals. There still will be a good many infants, however, who will have to be started early on a formula, and all should receive other foods and vitamines at appropriate times. The manufacturers of proprietary infant foods are doing their best to relieve us of the responsibility of having to figure out formulas, but unfortunately haven't succeeded completely. Until their success is complete we shall have to go on trying to keep up with the advancing knowledge of nutrition so that we can help our little patients build the best possible bodies.

Unfortunately, keeping up with the advancing knowledge of nutrition doesn't furnish us with the complete answer to infant feeding. The individual infant has likes and dislikes, tolerances and intolerances which must be reckoned with. Because these intolerances are so common, it seems logical to start

*Read as part of a Symposium on General Practice at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

XUM

each new food or vitamine separately so that any resulting disagreement may be detected and blamed on the real offender. Regurgitation, gas, colic, diarrhea, constipation, skin eruptions, chronic stuffy nose, and cough, repeated colds and bronchitis, restless and sweaty sleeping, stuttering, nervousness, minor convulsions, anorexia, etc., often are due to food allergy. When one or more of the so-called essential foods are at fault, adequate substitutes must be provided if the symptoms are to be relieved and proper nutrition be maintained. Because of the limited diet in infancy, detecting the offenders by elimination is often successful. Cow's milk, orange juice, fish liver oils, eggs, and spinach, approximately in this order, seem to be the chief offenders in infancy and the first four often continue this role into later years. Some infants can take one carbohydrate and can't take another which chemically approximates it closely. Some can tolerate a high percentage of soluble carbohydrate and some very little. Similarly, some small infants can tolerate less than 1 mgm. of ascorbic acid per dose because of colic, and dire threats of scurvy may be necessary to force the mother to continue its use until better tolerance has developed.

Preventive measures are available for many of the diseases most dreaded in times past. The general practitioner has the same sources of information concerning these that the pediatrician has and should be equally interested in following developments in this field. At this time I still prefer to give whooping cough vaccine alone in three doses, and recently have begun giving it to infants about the third month if the diet is properly adjusted. Diphtheria and tetanus combined toxoids come next and are probably better given after the sixth month and before twelve months of age, in two injections, two to three months apart. The Schick test and smallpox vaccination I give preferably about the eighteenth month. Typhoid and Rocky Mountain spotted fever vaccines are not given routinely but are available when needed. For scarlet fever, meningococcic meningitis, etc., small doses of a sulfa drug or oral penicillin seem effective, and are simpler to administer than any serum that might be available. For measles, immune globulin given after exposure is the choice now.

As life is more than food and drink, so is proper child care more than the provision of proper nourishment and the prevention or cure of infectious diseases. Endocrine and metabolic disturbances occur at times and must be recognized and treated properly if the child is to develop into a healthy and adequate adult. Progress is being made steadily along these lines but much still remains unknown to spur on further research. Finally, the child as an individual must develop properly both mentally and emotionally if he is to live a life worthwhile to himself and to the community. Proper nutrition and the prevention or cure of diseases contribute mightily but do not immunize the child completely to emotional shocks and frustrations, nor to the warping effects of constant association with significant individuals, who are inadequate, brutal, or abnormal. A child needs to feel wanted, loved and secure, as much as it needs proper food. He can be badly upset because his mother takes a job which seems to him a personal rejection, and may be made unhappy and ill because she brings from the hospital a new baby to monopolize her attention and relegate him to the side lines. The pediatrician or general practitioner should be able to recognize situations like these which are potentially dangerous both to the physical health and to the emotional development of the child. He should feel that with this recognition come the opportunity and the obligation to help the parents chart the best course possible under the circumstances.

1004 West Franklin Street.

CAN OBSTETRIC CARE BE IMPROVED?*

A. L. CARSON, JR., M.D.,
Director, Bureau of Maternal and Child Health,
Virginia State Department of Health,
Richmond, Virginia.

A substantial decrease has been made in the maternal mortality rate in Virginia during the past ten years.

Supervision of patients during the prenatal period is accepted as a major factor in the reduction of the incidence of toxemia. A trend to earlier hospitalization and prompt institution of medical rather than immediate radical methods of treatment have been contributing factors in obtaining better results in the management of this disease of unknown etiology.

Recent chemo-therapeutic advances, a more universal use of hospitalization, a more general but wiser administration of blood by transfusion, and less promiscuous invasion of the uterus have played a part in the prevention and treatment of puerperal infections.

Less spectacular advances have been made in meeting situations created by obstetric hemorrhage. There has been an earlier recognition and treatment of ectopic pregnancy, a keener differentiation of placenta praevia and premature separation of the placenta, and more pre-arranged plans for delivery in cases of disproportion in multipara and in borderline primipara. In addition to whole blood, the ready access to and the easy administration of plasma are among the greatest of the agents for sparing the lives of patients with hemorrhage.

The gradual reduction of the maternal death rate to its present level of 2.2 per one thousand live births indicates that progress has been made: CHART I. There must have been a great deal of the right kind of work done in order to have had a continual decline in the death rate. Many maternal deaths cannot be prevented; it may be that the number of non-preventable cases has run as high as one-third of all maternal deaths.

To maintain the gains that have been made and to reduce maternal mortality and morbidity to a lower level, certain statements are being made, based upon a survey of 607 consecutive maternal deaths in Virginia. These deaths covered the time from December, 1939, to May, 1942, which was near the middle of the ten-year period.

The necessity of prenatal care must be stressed. Three hundred and eighty-five, or 63 per cent, of the 607 maternal deaths had no such care. All doctors are aware of the value of this supervision but many patients fail to realize its importance. Definite benefits may be obtained by heeding the first signs of toxemia of pregnancy. When any of those things appear, observe that patient religiously for progressive changes; she may be a mild pre-eclamptic; she may be in the chronic cardio-vascular-renal

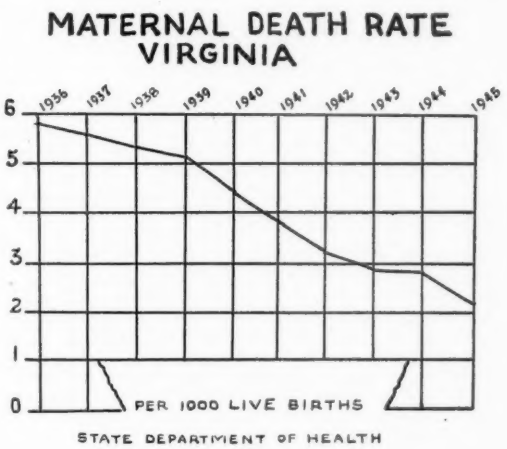


CHART I

group; or she may progress rapidly to the critical stage of severe pre-eclampsia or eclampsia. The mild pre-eclamptic may respond to simple measures, such as a salt-restricted, high protein diet and curtailment of activities, and then carried to term with rigid observation. Hospitalization and consultation are indicated for the patient with cardio-vascular-renal damage to determine whether the pregnancy should be terminated.

Based on the study of maternal deaths, certain statements, whose observation may be life-saving, can be made in regard to the treatment of eclampsia. The chances are that a patient in the last trimester

*Read as part of a Symposium on General Practice at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

of pregnancy with convulsions is an eclamptic. This statement is based on the fact that the most common diagnosis is the most likely. These are hospital cases. Regardless of what the later treatment may resolve itself into, the pregnancy should be disregarded for the time being and the patient treated conservatively until some radical measure is indicated because of failure of conservatism. It can be stated correctly that it is unwise to attempt immediate delivery by such methods as manual dilation of the cervix, the use of forceps with the cervix incompletely dilated, oxytocics, or caesarean section. These statements are being made for the reason that delivery does not always correct the eclampsia. A less important reason is that further injury may be added to a patient already in a critical condition. Ninety-three of the 607 maternal deaths were due to eclampsia.

The time may be approaching when infection may be one of the minor causes of puerperal deaths. Recent advances made in reducing infection as one of the major factors has been due to a more rigidly observed technique in delivery as well as in the use of recently discovered drugs. The promiscuous use of sulfa drugs should be classed as an unwise procedure. While the sulfa drugs have undoubtedly played an important part in the prevention and control of infection, their use should not encourage deviation from time-honored techniques whose value is accepted without question. Their availability should not magnify the indications for operative procedures. It should be remembered that the use of sulfa drugs is not entirely without danger since agranulocytosis, hemolytic anemia, hematuria, and crystalluria are conditions which may follow. Penicillin, with a wider margin of safety, has reduced somewhat the extensive use of the sulfa drugs. Streptomycin offers additional promise but its indications and limitations have not been determined definitely. It is possible that it will be valuable in combating some of the infections not reached by the sulfa drugs or penicillin. The prevention of puerperal infection is both more important and more efficacious than the cure.

One hundred and thirty-three of the 607 maternal deaths studied were due to hemorrhage. Placenta praevia and postpartum hemorrhage were responsible for 70 per cent of those deaths.

Thirty-four of the 133 hemorrhage deaths showed placenta praevia to be the primary cause. The study indicates that the most common fault in the management of these cases was the failure to consider this type bleeding as a serious matter. Bleeding in the later months of pregnancy points often to placenta praevia. It is rare that death occurs at the time of the initial hemorrhage but may follow a second episode a short time or weeks later. Because of the potential danger of having a fatal hemorrhage occur, neither vaginal nor rectal examinations should be made until the patient is hospitalized and preparation is made for transfusion as well as for any emergency operative procedure. It is believed that wholesome respect for antepartum vaginal bleeding will contribute to a decrease in maternal mortality.

Fifty-nine of the 133 hemorrhage deaths were due to postpartum hemorrhage. The best treatment for the control of postpartum hemorrhage is prevention. Granting that the case has been managed properly through the third stage and has been guarded rigidly for the conventional one-hour-postpartum, a definite number of postpartum hemorrhages could be prevented if the patients were checked frequently for evidence of bleeding for a twenty-four hour period.

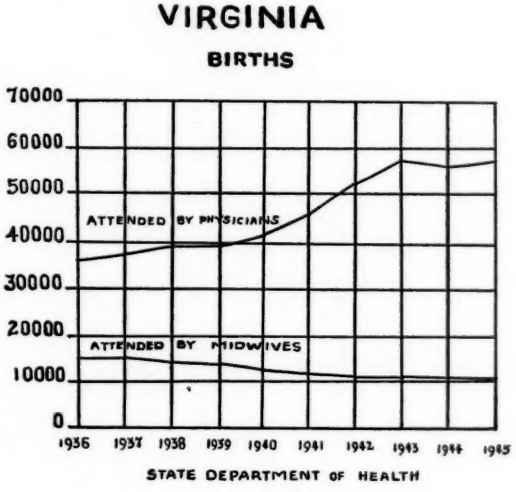


CHART II

Following the immediate control of hemorrhage, by whatever method indicated, it is essential that blood loss be replaced as early as possible. This may be accomplished by the immediate use of plasma followed by whole blood. Hemorrhage exposes the patient not only to the immediate danger of death

from blood loss but to the additional risk of the possibility of infection. Invasion of the uterus is always a hazard; re-invasion is doubly so. It is of little avail to save the life of a patient by controlling hemorrhage and replacing blood, and then have her die of sepsis.

The increase in the number of deliveries in Virginia during the past few years has been accompanied by a corresponding increase in the number of deliveries done by physicians, as shown by CHART II. It is to be noted that midwives play a gradually decreasing role of importance.

The increased load and the decreased number of available physicians demanded a service the provision of which was impossible in the home. It is to be noted that with the increased number of deliveries by physicians and the decreased number of deliveries by midwives there has been a definite shift to the hospital to meet this demand on the time of the physicians.

Ten years ago 9,119, or 17.8 per cent, of the deliveries in Virginia were in hospitals; last year 40,194 or 60.5 per cent of the deliveries were in hospitals. The increase in hospital deliveries is shown by CHART III.

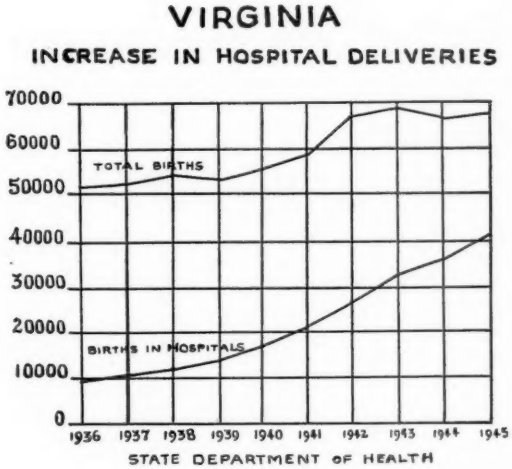


CHART III

The advantages of the hospital as a place for delivery may not have been an unfavorable discovery since the mortality rate has continued downward during the recent emergency.

Forty-eight thousand and two, or 72.3 per cent, of the 66,362 births recorded in Virginia during the past year were attended by general practitioners. The trend of hospitalization may be indicated by the fact that 32,111, or 66 per cent, of the deliveries by general practitioners were in hospitals.

Various factors have contributed toward the increased demand for obstetric care in hospitals. Among these are insurance plans, federal, state and local hospitalization programs, increased incomes, improved facilities offered by hospitals in contrast to inconveniences at home, an urge to keep up with the neighbors, less prejudice against hospitalization, inability to secure the services of physicians at home, and a desire on the part of physicians to avail themselves of better working conditions.

Included in the above are facilities whereby provision may be made for medically indigent obstetric patients with pathology. The increased use of hospital facilities has promoted a general feeling that consultation, more easily obtained, may be an advantage.

Can obstetric care be improved? The record, as expressed by the maternal death rate, shows that this has been done. A further reduction in the number of deaths will require greater effort directed toward those things which have been credited with that improvement. The rate, instead of going from high to low, must go from low to lower.

SUMMARY

Prenatal care is an important factor in the management of obstetric patients. Maternal deaths due to toxemia, infection and hemorrhage have been reduced. Early detection and conservative treatment of toxemia have been effective and should be continued. Chemo-therapy, plasma and whole blood are being used more wisely. Bleeding at any time should not be disregarded. The probability of having bleeding occur after delivery should be guarded against over a longer period. The general practitioner attended 72.3 per cent of deliveries in Virginia in 1945; 66 per cent of these were in hospitals. A greater number of deliveries in hospitals has been time-saving for the physician and has provided better care for the patient.

628 State Office Building.

XUM

NEUROPSYCHIATRY AS IT RELATES TO THE GENERAL PRACTITIONER*

JOSEPH R. BLALOCK, M.D.,
Marion, Virginia.

The challenge to the physician in general practice is as great as in any specialized field of medicine. The program today suggests some important fields in which special knowledge, interest and training are desirable, namely, in the fields of pediatrics, obstetrics, cardiology, diagnostic medicine and neuropsychiatry.

The subject of psychiatry in medical schools has slowly assumed a more prominent place in the curriculum. The more recent graduates are better grounded in dynamic psychiatry and in the interrelations of mind and body. The recently returning physicians from the war have been strongly impressed by the relation of stress, home-sickness, fatigue and emotional problems to mental well-being and to physical symptoms.

One entering private practice anticipates being largely concerned with diagnosing and treating physical disease. He finds that in over a third of the patients the complaints do not have a demonstrable physical basis and that in another third the physical symptoms can be accounted for in part only by the disease actually present. One sees, on the one hand, only a small number of psychotic persons and, on the other, one sees a larger number who are ill because of actual physical disease. There is a much larger number who have complaints not justified by the demonstrable pathology. Yet they are not psychotic. In these, psychological or emotional factors will have added to or distorted the physical.

The abnormal personality is a deviation from the normal. One lives in a relative state of adjustment. The picture a patient presents to the outsider by no means reflects what is going on within. The term "personality" is derived from the word "persona", meaning "mask". The personality is what the other person sees. The normal personality has been defined as being (1) free of symptoms, (2) unhampered by mental conflict, (3) having a satisfactory working capacity, and (4) being able to love someone else other than himself.

A mental disorder is the sum of many conditions, the end result of a long chain of processes. The infant enters the world with a certain constitutional endowment. The etiological factors in mental illnesses are not obscure, but they are many.

Among predisposing causes we have heredity, the life period in which the patient happens to be, environmental strain, occupation, race, and the presence of previous attacks.

Among exciting causes we have physical factors such as infection, toxicity, exhaustion, endocrine disorders, metabolic deficiencies, and chronic infections.

Certain unfavorable personality features may play a role such as unhealthy reaction habits, discrepancy in ambition and ability, emotional immaturity, inadequate social outlet, inability to give and take, rigidity of attitude and poorly utilized personal assets.

Of great importance are the situational factors. Some of these are competition, religious problems, marital problems, conflicts of various kinds, and reaction to physical handicap.

Just as important as some of the factors just mentioned are some childhood factors, such as overprotection, particularly by the mother, rejection by the parents, sibling rivalry, insecurity, and, by no means least, the problem of the broken home and divided loyalty.

Psychotherapy is the means that we utilize in treating the sick personality. Psychotherapy may be divided into simple methods for the general practitioner, advanced methods for the general practitioner, and methods for the specialist. Of the simple methods, many are used routinely in general practice. One must appreciate that psychiatric treatment of the patient starts at the first contact. The simple methods include physical examination, physical and medical treatment, reassurance, hydrotherapy, occupational therapy, establishment of daily routine, of hobbies, the use of authoritative firmness, suggestion, etc. It includes manipulation of the environment so as to remove external stress, guidance, and the providing of acceptable outlets for aggression. There is an abundant opportunity in general medicine for the spreading of principles of mental hygiene.

*Read as part of a Symposium on General Practice at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

The more advanced methods may be used by those who have special interests and training or aptitude. These include a deeper psychological investigation and personality analysis. The process of talking in the presence of a sympathetic and understanding person is itself therapeutic. The laying bare of the conflict, the acquiring of insight, the fuller understanding of one's self, all are therapeutic. One may utilize the discussion of life history, desensitization, persuasion, and re-education.

Some of the psychiatric disorders more commonly met with in the general practice of medicine are anxiety states, depressions, toxic organic reactions, and more purely organic reactions. I shall speak briefly concerning these.

Anxiety is a rather universal symptom and ordinarily is not severe enough to be very handicapping. The symptoms consist of an internal uneasiness, a fear of danger from within, of illness, or death, or impending danger. The patient will be seen with rather acute and transient anxiety attacks lasting from a few seconds to an hour or more, associated with palpitation, precordial discomfort, perspiration, difficulty in breathing, giddiness, perhaps diarrhea and frequency. Various associated physical symptoms may appear, such as cold clammy hands and feet, dry mouth, and blood pressure changes. This is one of the forms of psychoneurosis. The proper approach is not by exhorting the patient to stop worrying or to get hold of himself. Small doses of barbiturates, such as barbital grains 1½ two to four times a day, may be useful. Physiotherapy in the form of a warm sedative tub of one or two hours' duration in the evening is often helpful. It is most profitable, however, to take such time as might be necessary to perform a careful physical examination plus necessary laboratory work to rule out physical disease. Along with this one should obtain a careful history, bearing in mind that this anxiety state is an expression of dysfunction of the whole person. Environmental factors should be examined. The patient should be viewed from the longitudinal standpoint as well as from the standpoint of the cross-section at the time of his most recent problem. With the more full understanding that is derived, one then proceeds much more efficiently with such general measures as ventilation, suggestion, reassurance, and re-education.

Perhaps the condition imposing the most responsibility in general practice and the most difficult to evaluate properly is depression. Ten per cent of the cases admitted to the Colorado Psychopathic Hospital were depressions and 20 per cent of the cases seen in the Colorado General Hospital by the psychiatric personnel were depressions. A person is depressed when he is blue, despondent, dejected, and pessimistic. A certain amount of depression is normal as a reaction to an unfavorable situation. Depression appears in involutional melancholia, cerebral arteriosclerosis, manic-depressive psychosis, psychoneurosis, and there is ordinary grief in response to the death of a loved one. Some, particularly those up in middle-age and later, tend to be agitated and restless but the more pure depressions, particularly in younger people, tend to be slowed up in thinking and acting, showing what we term psychomotor retardation. They tend to complain. Hypochondriasis is prominent with vague complaints all the way to more marked manifestations of depersonalization, such as numbness, feeling that circulation has stopped, that one has turned to stone, etc. Dr. Ruth Fairbanks found that of 100 patients who attempted suicide 73 per cent were depressions.

In the management of these patients one should take no risks but early recommend hospitalization. In depressions the super-ego is overly strict, so one should avoid criticizing them, or telling them to buck-up, or giving them anything unnecessary to worry about.

There are so many depressions of a mild nature that they will have to be and they are well handled in general practice in a large number of instances. Hospitalization should be urged when the patient might be considered as potentially suicidal, when the environment is unfavorable to recovery, when the depression appears to be becoming fixed and stereotyped, or when he has become a nursing problem, particularly from the standpoint of eating.

A specific form of treatment has developed in the past few years, namely, electro shock or metrazol shock. These two methods produce convulsions, and in from 80 to 90 per cent of the patients the depressive reaction is markedly ameliorated or relieved entirely. It is recommended that the patient not be permitted to suffer too long without considering seriously electro shock therapy.

As regards toxic organic reactions, a good many are undoubtedly seen in general practice. These are chiefly the delirious reactions and are characterized by clouding of consciousness, drowsiness, partial or

XUM

complete disorientation, dream-like states, appearance of rather vivid hallucinations and illusions, considerable fear and suspicion. They tend to be caused chiefly by exogenous toxins such as alcohol, opiates, bromides, barbiturates, etc., by chronic infections in malnutrition or deficiency states, in metabolic disorders, and as part of an organic reaction. The treatment, of course, is directed along medical lines. The duration is quite often rather short, the condition clearing up within a few days with proper eliminative, supportive, and sedative measures. I cannot recommend too strongly that some provision be made in general hospitals for the care of psychotic patients, particularly of this type. Another type where such provisions would be very helpful would be for those who develop psychoses following pregnancy or within the first few days following operation.

Among the organic reaction types the more usual conditions are syphilis, arteriosclerosis, and senility. The paretics make up nearly 10 per cent of the admissions to the state hospitals. With more adequate early treatment these patients are being discovered much more frequently while they are still in the asymptomatic stage. These and those who are not too psychotic can be treated in general hospitals. Leaving out for the minute the matter of penicillin, the best treatment has been one of the forms of fever, either malaria or artificial fever, followed by a pentavalent arsenical, such as tryparsamide or aldersone. With these forms of treatment one can expect among those who have become psychotic a remission rate of one-third and an improvement rate of one-third. Malaria can very well be given in a general hospital. The relative value of penicillin treatment is still to be determined. It is quite possible that the ultimate treatment will be all or some combination of all three, penicillin, fever, and arsenicals plus bismuth.

The general practitioner will be continually meeting many misconceptions among his patients, and the correction of these will be of much help. Some of these are mentioned.

1. That heredity is the chief cause of mental illness. Heredity is of more serious import in certain organic brain defects, in feeble-mindedness, and when the family history is heavily loaded, one might say, with psychopathy. Patients, particularly those who have reached adulthood well adjusted, can be reassured.

2. That masturbation causes insanity. This is a physiological phenomenon and should be explained as such. It may play a part in causing mental trouble when the child has been influenced to worry or has become morbid about it. Introspection and a schizophrenic development might be initiated with excessive autoerotism of which masturbation is only part of the withdrawal from healthy external interests.

3. That over-work causes psychoses. It is rare that this is true. Over-working might be a symptom, as in a hypomanic, or in an anxiety state or in a compulsion neurosis. To a certain point overwork will be therapeutic but if not sensibly combined with adequate recreational outlets, rest and food, trouble may result.

4. That day-dreaming is a dangerous type of activity. Schizophrenia represents a withdrawal from reality into excessive phantasy. We distinguish between autistic thinking, too much of which is destructive, and realistic thinking which is constructive. Some of the autistic is all right but in excess is unhealthy. So we encourage a book worm and dreamer to externalize his interests, not to the point that is uncomfortable but reasonable for his particular personality.

5. There are many misconceptions and fears in connection with pregnancy. The fear of the ordeal of labor is built up from early childhood by allusions of mothers and others to "what mothers go through" and there is an air of mystery around the whole subject of sex. There is fear of loss of freedom as the children are added. There may be fears as to various defects in the coming child, of transmission of criminal or other tendencies, concern about the old notion of "maternal impressions". A prospective mother was worried that she must control her anger. The additional repression resulting from the effort to conform was the last straw in causing a puerperal psychosis. In some cases resentment against the husband, child or even herself occurs.

There are numerous other fears in connection with pregnancy. Re-education concerning the facts of pregnancy can do a great deal in overcoming these unnecessary and handicapping fears and notions.

In closing, I can do no better than quote the late Louis Hamman, that peer of modern diagnosticians, who wrote: "If a physician is once persuaded to look within himself to learn to identify unaccount-

able variations in mood and energy as the analogue of a manic-depressive cycle, the habit of ascribing failure and disappointment to ill luck or persecution as the promptings of paranoia, day-dreams as the harmless whisperings of schizophrenia, certain exaggerated reactions as the masks for day-dreams and inadequacies, various somatic symptoms as excuses for retreat from difficult or unpleasant situations, he will forever after have an enduring interest in psychiatry."

REFERENCES

Dunbar, Flanders: Emotions and Bodily Changes. New York; Columbia University Press, 1938.

Ebaugh, Franklin B.: The Care of the Psychiatric Patient in General Hospitals. Chicago; American Hospital Association, 1940.

Hinsie, L. E.: The Person in the Body. New York; W. W. Norton, 1945.

Levine, Maurice: Psychotherapy in General Practice. New York; Macmillan, 1942.

Weiss, Edward, and English, O. Spurgeon: Psychosomatic Medicine. Philadelphia; W. B. Saunders, 1943.

HYPERTENSIVE VASCULAR DISEASE—ITS EVALUATION AND MANAGEMENT*

JULIAN R. BECKWITH, M.D.,
Clifton Forge, Virginia.

Definition: Hypertension may be defined as the persistent elevation of systolic and diastolic blood pressure resulting from increased peripheral resistance. Elevation of systolic blood pressure alone, which occurs in arteriosclerosis, hyperthyroidism, or complete heart block, does not fit in with this definition and will not be discussed here.

Classification:

1. Essential
   a. Benign
   b. Malignant
2. Hypertensive Toxemia of Pregnancy
3. Renal Hypertension
   a. Glomerulonephritis
   b. Polycystic renal disease
   c. Pyelonephritis
   d. Renal artery occlusion
   e. Coarctation of the aorta
   f. Perinephritis
4. Miscellaneous
   a. Adrenal and pituitary tumors
   b. Increased intracranial pressure
   c. Physiological—due to pain or emotion.

PHYSIOLOGY OF HYPERTENSION

Regulation of the normal blood pressure is determined[1] by:

1. The pumping action of the heart.
2. Peripheral resistance.
3. Volume of the blood.
4. Viscosity of the blood.
5. Elasticity of the arterial walls.

All of the above factors have been found to be unchanged in uncomplicated hypertension except the peripheral resistance which is increased, and this produces elevation of systolic and diastolic blood pressures.[1] The peripheral resistance depends to a large part on the caliber of the arterioles, constriction of which vessels decreases their caliber and increases the resistance. This decrease in caliber may result from:

1. Narrowing due to organic change.
2. Hyperactivity of the vasomotor nerves.
3. Hypertonicity of the arterioles produced by some unexplained mechanism.

This latter mechanism is probably the fundamental abnormality which produces the elevation of the blood pressure in hypertension. No doubt other factors contribute to this just as they do in normal individuals but their effect is contributory only.

The cause of the arteriolar hypertonus is at present not known. It is thought to be humeral in nature; that is, some vasoconstrictor agent is probably circulating in the blood stream in greater than normal quantities. Its origin, in fact, its existence is theoretical. There is good evidence, however, that such a substance is present in the blood of animals

*Read as part of a Symposium on General Practice at the meeting of the Medical Society of Virginia, at Virginia Beach, October 14-16, 1946.

From the Department of Internal Medicine, the Chesapeake and Ohio Hospital, Clifton Forge, Va.

made hypertensive by renal ischemia and that this substance is of renal origin.[2a] Renal ischemia has been demonstrated in hypertensive individuals also, but this is thought to be secondary rather than primary.[3]

Since a normal peripheral blood flow is maintained in hypertension,[4] the force of the heart beat must be increased to effect this.

PATHOLOGICAL EFFECTS PRODUCED BY HYPERTENSION:

A. Cardiac—enlargement of the left ventricle.
B. Arteriolar damage.
C. Renal damage.

A. *Enlargement of the left ventricle* occurs as a result of increase in length of the individual muscle fibers. Later the ventricle dilates and failure supervenes. Right ventricle hypertrophy and dilatation follow. Coronary sclerosis and myocardial degeneration are often associated.

B. *Arteriolar damage* occurs as a result of work hypertrophy of the intima, the elastica, and the media. The lumen is narrowed and sometimes obliteration follows. Arteriolar damage may be diffuse but is usually most marked in the kidneys. In some instances, necrotizing lesions occur and the so-called malignant phase develops.

C. *Renal Damage.* The principal lesion of the kidney is that involving the afferant arterioles whose intima becomes thickened, resulting in decrease in the blood supply to the glomeruli. These collapse, become fibrosed and the tubules subsequently atrophy. This process develops in patches, renal units disappear and are replaced with scar tissue. The remaining units hypertrophy and alternate with areas of scar tissue throughout the kidney. The kidney subsequently becomes contracted and the surface irregular.

When the malignant phase of hypertension occurs, areas of arteriolar necrosis appear, and subcapsular hemorrhage may result. This process is rapid and interferes with renal function to a much greater degree than in benign hypertension.

Relation of Human Hypertension to Experimental Hypertension: Hypertension has been produced in the laboratory by several methods, but the ones most commonly used are as follows:

1. Removal of a portion of renal tissue.[5]
2. Constriction of one or both renal arteries.[6]
3. Production of perinephritis.[7]

The last two methods are associated with the production of renal ischemia without the development of renal insufficiency. These methods thus produce a type of hypertension which is similar to clinical essential benign hypertension, and one sees occasionally in humans hypertension which is probably produced in a like manner.[8] The vast majority of patients with hypertension do not have renal arterial occlusion perinephritis or are subject to the other conditions produced in experimental animals.

As mentioned previously, even though renal ischemia exists, it is probably secondary to hypertension and not a causal factor.

One can only state that there is no known relationship between experimental hypertension in animals and essential hypertension in humans.

CLINCAL CHARACTERISTICS

Hypertensive vascular disease is one of the great killers of man; in fact, between the ages of 35 and 44, it accounts for about 25% of the total death rate and between the ages of 65 and 74, it probably constitutes 60% of the total death rate.[9]

Family Incidence: It is a well known fact that hypertension "runs in families," and most of us know of such families whose members die as the result of this disease. Ayman found that 28.3% of children in families with one hypertensive parent and 45.5% of the children in families with two hypertensive parents have high blood pressure, while only 3.1% of the children with normatensive parents develop the disease.[10] Hines states that a family history of hypertension is five times more frequent in hypertensive individuals than in normal persons.[11] He believes that hypertension is inherited as a dominant trait.

Pre-Hypertensive State: Many individuals are found to have elevation of blood pressure at times while at other times these same people have normal blood pressure. These individuals are more apt to develop hypertension at a later date.[12] They are pre-hypertensives, having elevation of blood pressure only when under some emotional or physical stress. Later, the blood pressure elevation is sustained and they are victims of hypertensive vascular

disease. Unfortunately, there is no practical advantage to early diagnosis since there are no preventative or curative measures that can be instituted.

Clinically, symptoms actually produced by hypertension depend on the underlying pathology of the disease. Therefore, it appears best to discuss briefly the clinical manifestations of the pathological processes.

Eyes: The arterioles are diffusely involved and changes in these are responsible for symptoms referable to the eyes. Retinal changes can be easily seen with the ophthalmoscope. Spasm of the arterioles occurs first. This may be seen as localized areas of narrowing associated with irregularities in the light streak. The light streaks later become accentuated, due to thickening of the walls of the arterioles, accompanied by tortuosity and acute branching of these vessels as well as compression of the veins at the points of crossing. Flame-shaped and punctate hemorrhages later appear, associated with the presence of exudate, due to obstruction of small vessels, with resulting lipoid degeneration. Finally, edema of the disc and of the retina appear. This usually indicates that the vascular disease is far advanced. It should be emphasized, however, that there is not always a close correlation between the degree of eye ground changes and the state of advancement of hypertension. Occasionally, one will see advanced retinal changes in an individual who has a relatively benign hypertension, while individuals with advanced nephrosclerosis may die in uremia with minimal changes in the retinae.

Generally, however, the individual who has papilledema, spastic thickened arteries, hemorrhage, and exudate has far advanced disease.

Eye symptoms depend on where hemorrhage and exudate occur in the retinae. Changes which encroach on the macula will produce visual disturbances, while similar changes in other areas produce no noticeable visual defect.

Brain: Headache is a symptom which occurs commonly in individuals who also have hypertension. The typical hypertensive headache is said to be throbbing in character, frontal or occipital in location, and is characteristically present in the morning on arising. Many types of headache occur in these people just as they do in any group of individuals who are chronically ill. Some resemble migraine, some are localized in one part of the head, and some are diffuse. The exact relationship between these headaches and hypertension is not clear but no doubt some are due to localized angiospasm, cerebral edema, or increased intracranial pressure.

Cerebral thrombosis is apt to develop slowly. Often the individual is merely disoriented for several days. At other times, he may wake up in the morning with hemiplegia or hemiparesis. Some degree of return of function usually follows.

Cerebral hemorrhage is usually more dramatic. It occurs suddenly without warning, and is often associated with immediate unconsciousness, followed by nausea, vomiting, convulsions, and Cheyne-Stokes respiration. Death often occurs in 24 to 48 hours, but sometimes the individual survives the attack and is left with permanent cerebral damage with symptoms referable to the area involved.

Hypertensive encephalopathy not infrequently occurs during the course of hypertensive vascular disease. An individual then develops signs of cerebral ischemia which may be manifested by the occurrence of sudden severe headache, nausea and vomiting, followed by convulsions, unconsciousness, and transient hemiplegia. Any combination of the above symptoms may occur and may be very mild to very severe. The episodes usually last from a few hours to a few days and clear up completely. The attacks are generally forerunners of cerebral accidents such as thrombosis or hemorrhage which produce permanent damage.

Subarachnoid hemorrhage is an unusual result of hypertension. Then, an individual suddenly develops headache and sometimes becomes unconscious. Signs of meningeal irritation, elevation of temperature, and leukocytosis occur. Focal signs rarely develop.

Heart: Heart disease is a common cause of death in hypertension. A compilation of the statistics of six groups reveals that of 1264 cases,[9] the causes of deaths of patients with hypertension are as follows:

Heart disease	66%
Cerebral vascular accident	14%
Uremia	8%
Miscellaneous	12%

Since the heart is forced to perform an increased amount of work in order to maintain an adequate peripheral blood flow, work hypertrophy occurs and

XUM

cardiac enlargement develops. This appears first in the region of the left ventricle and manifests itself as rounding and elevation of the apex. This cannot be detected early by physical examination and one must depend on x-ray studies. The electrocardiagram may show evidence of left ventricular preponderance, and in the late stages T-waves often occur, indicating relative coronary insufficiency.

Dilatation of the heart follows hypertrophy. The apex can then often be palpated or percussed beyond the mid-clavicular line.

Heart failure follows, as evidenced by dyspnea, orthopnea, cough, basal rales, and peripheral edema.

The anginal syndrome may develop because of relative decrease in blood supply to the muscle. This is usually associated with coronary sclerosis. The diagnosis can usually be made from the history, but occasionally special methods are required to differentiate this from other conditions producing chest pain.

Myocardial infarction may develop with prolonged chest pain, elevation of temperature, drop in blood pressure, and characteristic electrocardiographic changes.

Kidneys: Though renal insufficiency is a relatively uncommon cause of death in hypertension, early changes do occur in the kidneys and progress as time goes on. It has been shown that early in the course of hypertension the maximum tubular excretory capacity is diminished with an associated decrease in renal blood flow. The glomerular filtration remains normal at this stage, while the fraction of plasma which is filtered by the glomerulus is increased.[9] Though these changes occur in every hypertensive individual, indicating impairment of renal function, the laboratory procedures which can be done in the average clinical laboratory are normal.

The urine is not abnormal, the blood urea clearance intravenous P.S.P., and concentration tests are all normal. Later, small amounts of albumin, casts, and red blood cells appear in the urine and the clinical tests show some impairment of function.

Elevation of nonprotein nitrogen does not occur unless uremia supervenes or unless some extra renal factor precipitates it. When the malignant phase occurs, urinary abnormalities appear early and the renal function tests then may show a marked decrease in renal function.

HYPERTENSIVE TOXEMIA OF PREGNANCY

No discussion of hypertension would be nearly complete without at least mentioning this subject. The condition is superficially similar to other types of hypertension in that there is an increase in blood pressure without the presence of renal insufficiency. However, it differs in that albuminuria and edema are present and that the blood pressure usually returns to normal when the pregnancy is terminated.

This condition appears in six to nine per cent of previously normal patients, and 50% of previously hypertensive patients.[2b]

Four important points stand out:

1. Essential hypertension follows about 25% of hypertensive toxemias of pregnancy.[2b]
2. Resulting permanent hypertension depends somewhat on the time that the toxemia is allowed to exist.[13]
3. The condition is apt to recur with subsequent pregnancies,[14] and
4. Pre-existing hypertension is often accelerated by pregnancy.[14]

It seems good advice that the individual who has had hypertensive toxemia or who has hypertension should be cautioned against pregnancy and that, if pregnancy does occur, interruption should be carried out at the first sign of elevation of blood pressure.

GROUPING OF HYPERTENSION

This serves the useful purpose of allowing one to classify a particular patient and to predict his probable course.

The tables are taken from Herndon's *An Introduction to Essential Hypertension*. They are as follows:[14]

Early or Mild Benign:

Age—30 to 65.

Symptoms—None to slight. Health good.

Blood pressure—Systolic 150 to 200. Diastolic 100 to 120. Occasionally normal at rest.

Retinal changes—None or minimal arterial narrowing.

Heart—Slight or no demonstrable change.

Urine—Normal.

Renal function—Normal.

Brain—Normal.

Five-year mortality—30 per cent.

Moderate Benign:

Age—21 to 59.

Symptoms—Slight. Early morning headaches, vertigo. General health good.

Blood pressure—Systolic 200 to 270. Diastolic 100 to 130. Lower at rest but never normal.

Retinal changes—Definite arteriolar sclerosis. Arteriovenous compression. No retinitis.

Heart—Slight enlargement. Left ventricular preponderance. Good function.

Urine—Mild albuminuria and casts.

Renal function—Slightly decreased. Urea clearance 30 to 40 cc.

Brain—Normal.

Five-year mortality—46 per cent.

Late or Severe Benign:

Age—22 to 57.

Symptoms—Definite. Headache, nervousness, vertigo, tire, dyspnea, nocturia.

Blood pressure—High. Almost always over 170 systolic and 110 diastolic.

Retinal changes—As before, plus retinitis with edema, white spots, cotton-wool patches, and hemorrhages.

Heart—Enlarged. Definitely diminished reserve.

Urine—Albumin, casts and often red cells.

Renal function—Decreased. Urea clearance 20 to 30 cc.

Brain—Cerebral disturbances or accidents frequent.

Five-year mortality—80 per cent.

Malignant Syndrome:

Age—8 to 64.

Symptoms—Severe. Headaches, disturbed vision, muscle pains, weakness, dyspnea.

Blood pressure—High and fixed. Systolic usually over 250, diastolic seldom below 140.

Retinal changes—As in group 3 plus papilledema.

Heart—Enlarged. Actual or impending failure.

Urine—Albumin, casts and red cells.

Renal function—Function usually low with urea clearance 7 to 20 cc.

Brain—Disturbances present.

Five-year mortality—99 per cent.

CLINICAL EVALUATION

A plea is made for less frequent but more thorough examination of hypertensive patients. Blood pressure determination should be made after the patient has been resting ten to fifteen minutes. Several readings should be taken and recorded. In order to determine whether an individual has true hypertension or is potentially hypertensive, readings should be taken on several different occasions. Once the diagnosis is established, it is unwise to have the patient return frequently for blood pressure readings. His mind becomes focussed on his blood pressure, which is merely a symptom of his disease and often becomes unduly concerned or unduly reassured by this procedure.

Major fluctuations of blood pressure occur for no apparent reason and it is too easy to give credit to some particular regime or medication, which is in vogue, for a dramatic lowering of the blood pressure. Unless a patient is being observed for some particular reason, for example, blood thiocyanate determination, do not ask them to return frequently.

Fundoscopic examination is most valuable and should be carried out in a dark room with the pupils dilated. The retinae should be described and recorded so that future changes can be evaluated.

Cardiac Examination: Heart size may be roughly determined by physical examination. This is sufficient for practical purposes. Ideally, however, every hypertensive patient should have some sort of recorded measurement of heart size, either by teleoroentgenogram or orthodiagram. This serves as a base line for future comparison.

An electrocardiogram should be taken since this may confirm a clinical impression or may show up unsuspected myocardial damage. It is more valuable prognostically than therapeutically.

Heart failure can be best detected by history and physical examination. Occasionally special procedures such as venous pressure, circulation time, and vital capacity are necessary aids to confirm this.

When failure occurs, full digitalization should be carried out and a maintenance dose continued indefinitely. Sodium should be restricted in the diet to a minimum and diuretics administered as needed.

Anginal failure occurs frequently and can be usually diagnosed by history, but special studies may be necessary before conclusive evidence is obtained. We have found the Master Step Test most useful.[16] With this one observes the effect of a standard amount of exercise on the electrocardiogram. When the exercise produces relative myocardial ischemia,[17] characteristic electrocardiographic changes may occur, thus giving objective evidence of coronary insufficiency.

Renal Evaluation: Renal pathology is advanced before demonstrable abnormalities of function appear. Examination of the urine is an obvious method

of evaluation. The presence of albumin, red blood cells, and casts may indicate serious damage particularly if heart failure is not present. A high specific gravity, about 1.020, on a random specimen indicates that renal function is adequate, while a low one means nothing. If the specific gravity is low, a concentration test should be performed.

The intravenous phenolsulfonephthalein test is also a simple test that can be done in the office. The urine voided fifteen minutes after 1 cc. of the dye is injected should contain 25% or more of the injected dye.

Blood urea clearance is probably the best clinical method for determining kidney function. This requires the assistance of a good clinical laboratory and careful technique.

The non-protein nitrogen or blood urea-nitrogen becomes elevated when renal compensation fails, but not until the other tests show marked decrease in function, unless some extra renal cause for azotemia is associated.

Intravenous pyelogram should be performed on every early case of hypertension, particularly in young people in the hope that unilateral renal disease may be found and in rare instances the hypertension cured.

Urological consultation may be necessary in some instances for evaluation and treatment of specific renal disorders such as lithiasis and pyelonephritis.

MANAGEMENT

Specific treatment of hypertension should have as its aim the reversal of the fundamental abnormality, which is arteriolar constriction. Since there is no known method of treatment which will accomplish this, one must resort to palliative measures.

Rest: Vasomotor release occurs to some extent when physical and mental rest are instituted, and the blood pressure may be considerably lowered. It is, therefore, important for the hypertensive patient to obtain 10 to 12 hours in bed at night and a 1 to 2 hour nap during the day. It is sometimes helpful for an individual to remain in bed for 24 hours once or twice a month. Relaxation is often enhanced by the regular ration of a sedative. Long relaxing vacations are helpful.

Rest and relaxation are important, but complete retirement is usually harmful, and it is more desirable for an individual to lead a relatively sedentary productive life than to become an invalid.

Diet: There is no special diet that should be given to all hypertensives. If the individual is obese, his calories should be restricted, and if he is malnourished he should be given a good enough diet to bring his weight to just below his average normal. Limitation of proteins or of salt have no place in the management of uncomplicated hypertension.

Psychotherapy: This is probably the most important phase of the management of the hypertensive. It should be explained to him that he has a disease that he can live with for a number of years and that disaster is not apt to befall him tomorrow. Occasionally an emotional upset can be unravelled and the blood pressure considerably reduced.[18]

The average practitioner can employ a sympathetic ear and can offer solace to great advantage to his patients by considering him as a whole rather than a blood pressure reading.

Drugs: A. Sedatives have been mentioned. These should be given in moderation and should be varied so that the patient will not become unduly tolerant of any particular drug. It is wise to discontinue the medication for short periods of time.

B. Nitrites produce smooth muscle relaxation and temporarily reduce blood pressure but this effect is so transient that benefit is very doubtful.

C. Thiocyanate: Potassium and sodium thiocyanate have been given for a number of years for hypertension. The mode of action is unknown but it has been observed that blood pressure is often reduced when these are administered. It is important that the blood concentration be determined frequently because if the level becomes above 12 to 15 mg. per 100 cc., toxic manifestations may appear and occasional fatalities result. Severe reactions have also been observed with supposedly safe levels.[9]

The optimum level of 8 to 12 mg. per 100 cc. can usually be reached in a few days to a week by giving 12 gr. per day and can be maintained by giving 3 to 6 gr. per day. Weekly determinations of the concentration of the drug in the blood is important. This can be done by a simple office test which gives approximate result adequate for clinical purposes.

Renal Extracts: Enthusiasm ran high in 1939-40 when work then in progress indicated that the blood pressure of animals and of humans could be reduced by oral ingestion or parenteral injection of kidney extracts.[19] These effects have been found to be non-specific, however, and there is at present no hormonal treatment of the disease.[9] A great deal of work has been done and it is possible that future workers will develop some type of extract so that the hypertensive patient can be given an injection regularly which will keep his blood pressure within normal limits.

Surgical Treatment of Hypertension: Surgery has two aims in the treatment of hypertension:

A. Removal of a diseased kidney which is a causal or a contributing factor in the production of the blood pressure elevation.

B. Interruption of sympathetic pathways and allowing vasodilatation of a large vascular bed.

The former is done when it can be definitely shown that the kidney is damaged or that there is obstruction of the blood supply to one kidney. It is rare, however, first to find unilateral renal disease and, once found, it is rare that after removal of the kidney the blood pressure returns permanently to normal.[9]

Interruption of the sympathetic pathways is a palliative procedure which by no means gets at the cause of the disease since the increase in vasomotor tone is not the fundamental abnormality in essential hypertension. Denervation of a large area of the peripheral arteriolar bed causes pooling of blood in this bed and results in a decrease in venous return to the heart thus causing a reduction in cardiac output with subsequent decrease in arterial blood pressure.

Acceptable results have been obtained in selected individuals,[20] though at the present time no one can say whether or not permanent benefit will result or whether or not life expectancy is increased.

The selection of patients for sympathectomy is difficult. There are a group, however, who have little arteriolar damage, good renal function, no demonstrable heart disease, and whose blood pressure becomes markedly reduced during rest. These individuals are often greatly benefited. Since the operation carries a low mortality, it is worth considering. Though this is the only thing we have to offer to hypertensives now, one wonders if that is a sufficient reason for offering it. Time will tell. In the meanwhile, we should discuss this frankly with our patients, telling them that it is palliative and not curative, but probably helpful.

BIBIOGRAPHY

1. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice; Williams and Wilkins Co., 1945.
2. a.—Goldblatt, H.: *Ann. Int. Med.* **11**:69, 1937.
   b.—Herndon, Richard F.: Introduction to Essential Hypertension, Charles C. Thomas, 1946.
3. Goldring, W.; Chassis, H.; Ranges, H. A., and Smith, H. W.: *Jour. Clin. Inves.* **20**:637, November, 1941.
4. Prinzmetal, M., and Wilson, C.: *Jour. Clin. Inves.* **15**:63, 1936.
5. Chanutin, A., and Ferris, E. B.: *Arch. Int. Med.* **40**:767, 1932.
6. Goldblatt, H.; Lynch, J.; Hanzal, R. F., and Summerville, W. W.: *Jour. Exper. Med.* **59**:347, 1934.
7. Page, I. H.: *Science* **89**:273, March 24, 1939.
8. Blatt, E., and Page, I. H.: *Ann. Int. Med.* **12**:1690, April, 1939.
9. Goldring, William, and Chassis, Herbert: Hypertension; The Commonwealth Fund, 1944.
10. Ayman, David: *Arch. Int. Med.* **53**:792, 1934.
11. Hines, E. A., Jr.: *Ann. Int. Med.* **11**:593, 1937.
12. Hines, E. A., Jr., and Brown, G. E., Jr.: *J.A.M.A.* **115**:271, July 27, 1940.
13. Peckhan, C. H., Jr.: *Amer. Jour. Obst. & Gynec.* **42**:638, 1941.
14. Fishberg, Arthur M.: Hypertension and Nephritis, Lea and Febiger, 1939.
15. Wagner, H. P., and Keith, N. M.: *Medicine* **8**:317, 1939.
16. Master, A. M.; Friedman, R., and Dack, S.: *Amer. Heart Jour.* **24**:177, 1942.
17. Master, A. M.: *Amer. Jour Med. Science* **207**:435, April, 1944.
18. Weiss, Edward: *J.A.M.A.* **120**:1018, 1942.
19. Grollman, A.; Williams, J. R., and Harrison, T. R.: *J.A.M.A.* **115**:1169, October, 1940.
20. a.—Smithwick, R. H.: *Arch. Surg.* **49**:180, 1944.
    b.—Peet, M., and Isberg, E. M.: *J.A.M.A.* **130**:467, 1946.
    c.—Smithwick, R. H.: *Cleveland Clin. Quar.* **12**: 105-117, October, 1945.

XUM

LABORATORY AND DIAGNOSTIC METHODS OF INTEREST TO THE GENERAL PRACTITIONER*

WALTER B. MARTIN, M.D.,
Norfolk, Virginia.

It will be understood that in speaking of the general practitioner, I am referring to that most necessary and important member of our brotherhood who assumes the responsibility of counseling, and advising the family group in matters pertaining to their health. In a broad sense, the family doctor is interested in all well-established laboratory or other diagnostic procedures that will aid him in determining the cause of a disease process, or guide him in its treatment. It is generally agreed that the well-qualified family doctor can properly care for 80 per cent or more of the illnesses that come under his observation. If he is familiar with accepted diagnostic methods available, he will be quick to realize his limitations, and to guide those patients who need more detailed examinations or special treatment in the selection of suitable specialists. It is obviously impossible for him to have detailed knowledge of all special procedures, but he should understand their possibilities and their limitations. How else is he to discharge his obligation to his patients?

Time does not suffice to even call the roll of the laboratory methods that may be employed in the diagnosis of disease, or in following response to treatment. It would be unprofitable to attempt to formulate a special list for the family doctor. His use of these aids to diagnosis and therapy will depend not only upon his training experience and alertness, but upon their availability and reliability. We might reasonably speak of laboratory procedure of special interest to the cardiologist or the urologist, since their fields are restricted, but in the course of time a busy family doctor will encounter problems in all the fields of medicine. His knowledge of laboratory aids must be broad even if it is general. In some instances, especially if isolated, he may develop certain laboratory facilities of his own, but for the most part he must rely on private, commercial, hospital or government laboratories. The discriminating use of such laboratories is necessary, if he is to avoid unnecessary waste of his patient's time and resources.

As previously stated, he should know the possibilities and limitations of special aids. Laboratory methods in general are not diagnostic. They should be employed to confirm or disprove well considered clinical impressions, or as a guide in the progress of treatment. The limitations of laboratory aids are many, and blind dependence on laboratory results unsupported by sound clinical judgment will often lead one astray.

There is the limitation of the inherent errors in almost all clinical laboratory tests, even if performed with the greatest care. The meticulous and detailed technique that must be exercised in carrying out and evaluating such a seemingly simple procedure as the determination of the number of red cells in a cubic millimeter of blood will illustrate this point. The pipette must be properly calibrated. A free flowing drop of blood must be obtained. Exactness in drawing blood to the desired mark, and in drawing up the diluting fluid must be observed. The suspension must be agitated until it is uniform. The fluid in the stem of the pipette must be expelled, and material for the count obtained from the content of the bowl. The counting chamber and cover glass must be scrupulously clean. Great care must be exercised in filling the chamber, so as to obtain a uniform distribution of cells. The technician must observe a definite method in accepting or rejecting cells on marginal lines, and must count the cells in enough squares to assure a fair average for the entire chamber. With all of these precautions, with the same technician using the same sources of blood, and making repeated counts under uniform conditions, there will be a variation of 200,000 to 300,000 cells. It is further known that hydration and dehydration, relation to meals, chilling, local congestion, excitement, nervousness and other factors, will further affect the results. All methods of precision adaptable to clinical use have an appreciable range of error.

The human element is a further limitation. Error here may be due to normal difference in judgment or opinion, to fatigue, or to carelessness, indiffer-

*Read as part of a Symposium on General Practice at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

ence, or lack of training. A good technician, in addition to training and experience, must have a medical conscience, and must be temperamentally fitted to do painstaking and detailed work. Many errors are often due to overload and fatigue. Failure to limit the load on a laboratory results in poor work produced under pressure, and detracts from the value of all laboratory work.

The third limitation is in interpretation, either by the clinician or the worker who undertakes to advise the clinician. The clinician must know not only the normal variation of values, but also the probable and possible range of abnormal values. Where one sees the color index changed over night, or a shift in the absolute ratio of granulocytes and lymphocytes beyond the range of probability, skepticism as to the accuracy of some of the reports is justified.

The limitation of availability is obvious. The facilities in a remote village are not comparable to those in a medical center. This limitation, however, should not be in quality, but in the variety, complexity and number of procedures. A few procedures accurately performed are of far greater value than a long list of mistakes. The family doctor practicing under the shadow of a medical center may have access to many more aids than his country brother, but he should not have the advantage of greater accuracy. The isolated physician working with simple equipment, but able to correlate his clinical and laboratory findings, may develop even greater accuracy. The development of large, well-equipped laboratories where the worker is remote from the patient, has not always led to improvement in the quality of laboratory work.

There is also the limitation of expense. Perhaps in the golden era, visualized by those who advocate socialized medicine, this may not be a consideration. Should this occur, it will be unfortunate. If laboratory services are free to everyone, they will be used without judgment or discrimination. This will not only tend to produce sloven clinical medicine. but will often react badly on the patient. Those of you who had experience in the armed forces know how often neuroses were aggravated or induced by prolonged hospitalization and aimless indulgence in multiple laboratory examinations.

The family doctor must be aware of all of these limitations, and on the basis of accuracy, simplicity and availability select those procedures that he can best use to supplement his clinical skill and judgment. Again, it is not possible to achieve completeness or to present to you an exhaustive list of such aids. I can only point the way by a few examples.

Confronted with a patient with a continued fever, an accurate leucocyte count and differential, will serve to place the case in one or two groups. With a normal or low count, one would consider the typhoid group, malaria, tuberculosis, undulant fever, atypical pneumonia, influenza, to mention a few. A careful differential and an examination of a stained smear will further narrow the field. If a leucocytosis is found, the possibility of pyogenic infection, either general or local, must be explored. Here, again, clinical judgment must be used, since overwhelming infections may depress the leucocyte response, or the bone marrow may be stimulated or depressed by some concomitant condition. In the presence of an anemia, the first effort should be to determine whether the anemia is due to blood loss, blood destruction, or failure of blood formation. Examination of the formed elements of the blood may give the answer, since an abnormally low white count, platelet and reticulocyte counts point to general depression of bone marrow activity. The presence of an associated leucocytosis for which there is no obvious cause, will suggest acute blood loss. Observation of the morphology and staining characteristics of the red cells may point to a hemolytic anemia.

The availability in state, municipal and many hospitals and private laboratories of agglutination tests for the typhoid and typhus groups, together with undulant fever and tularemia makes possible the laboratory confirmation of the presence of these diseases. Both positive and negative findings must be received with due regard for the fact that agglutinations may be slow in developing, or may be non-specific for the disease being studied in patients who have been vaccinated.

Serological tests for syphilis are probably more widely available than any other test. Even when performed by qualified technicians in an accredited laboratory, they are not to be accepted on faith unless the exact technique used in a particular laboratory is known. Both false negative and false positive reactions occur. Serological tests for syphilis may be either highly sensitive, giving few false negatives, or highly specific, giving few false positives. They cannot be both. Transitory positive reactions

XUM

occur in the course of many diseases, and biological false positives occur not infrequently. It would seem that the state laboratories should work with a highly specific antigen and reduce the risk of reporting false positives, since the state is concerned primarily with the public health aspect of the disease.

Bacteriological examination of the blood and other body fluids has become increasingly important, with the advent of specific chemotherapy. The decision on whether to use penicillin, sulfadiazine, or streptomycin, or none of these, will often depend upon bacteriological findings. Accurate work in this field, however, requires well trained workers, and good facilities. These facilities cannot ordinarily be developed by the family doctor. He must have recourse to large hospital or government laboratories. If he is familiar with methods of obtaining and handling material for culture, he need not be denied this aid.

Biochemical methods can also be made available. A knowledge of the level of non-protein nitrogen, urea, uric acid, sugar, calcium, sodium, phosphorus, cholesterol and other substances in the blood is an important aid in the diagnosis of disease as a guide to therapy. The fluctuations of total plasma protein and its components, principally albumin and globulin, play an important part in nutritional disease, burns, the post-operative course of patients, and in renal and liver disease.

Functional studies of certain organs, particularly the liver and kidney, are necessary adjuncts in the diagnosis and treatment of diseases of these organs. Urine concentration tests, dye excretion, urea-nonprotein nitrogen ratio and urea clearance determination give important information as to kidney function and changes in these findings point to the progress of recession of disease.

In the evaluation of liver disease, the determination of the presence or absence of dye retention, the fluctuation of the level of serum bilirubin, cholesterol and cholesterol esters, cephalin fluctuations, the total protein, albumin and globulin levels are of significance. Such lists of laboratory aids could be extended almost indefinitely. More important than a multiplicity of tests is the selection of those upon whose accuracy one can depend.

It is evident that the family doctor must have an interest and a certain familiarity with a large number of diagnostic tests and procedures. This interest must extend to a knowledge of the possibilities and limitations of these special procedures. He should be capable of interpreting them in connection with the clinical findings in his patient. He should be equally aware of the advantages and shortcomings of laboratory aids and should use them as aids only in the diagnosis and treatment of disease.

521 Wainwright Building.

DISCUSSION OF PAPERS BY DRS. JONES, CARSON, BLALOCK, BECKWITH AND MARTIN

DR. J. L. RAWLS, Norfolk, President: I should like to start the discussion by asking Dr. Jones a question. He made two statements in sequence in which I was interested. He said that one of the things that create disturbances in the family life is the fact that the mother frequently goes out to work and the child develops some kind of complex because it does not have the normal association with its mother and feels neglected. The next statement, coming immediately after it, was the statement that frequently the mother brings home a new baby and that further upsets the little fellow's equilibrium. I wonder if there is any connection between the two statements?

We are ready now for general discussion of these papers.

DR. JOHN F. WILLIAMS, Richmond: I should like to make a brief comment on Dr. Jones' paper. He said, in few brief days, little in time and great in significance, in which the baby associates with his mother right after birth, at a time when the baby should be getting breast milk, should be breast-fed and should be held by the mother, there is a feeling of security developed and basic hungers are satisfied; the child is satisfied by warmth and love and affection, and so on. It has been shown by Dunbar and others that in this brief period certain foundations for illness in later life can be laid down. Rejection by the mother can be the foundation for such illness. It is with those, of course, that I have to work; and I think that Dr. Jones may prevent many from requiring psychosomatic care later in life.

DR. BASIL B. JONES, Richmond, closing the discussion on his part: I appreciate very much the discussion my paper has received.

In reply to the question about the working mother and the mother returning from the hospital with a new baby, and the effect they might have on the older child, the child's view of the world is rather narrow and is closely related to himself. When the mother has to go off to work, the child may interpret her leaving as a personal rejection. He becomes emotionally upset and often becomes ill. I think Social Agencies often find that in moving a child from one foster home to another, the child becomes sick—he may have a cold or a digestive upset for example, or if previously trained away from bed-wetting he may start it all over again. I think very definitely that emotional disturbances in childhood may lead to physical illness.

As to the new baby, the older child has been the center of attention for two or three years. The mother then goes off to the hospital and comes back with a new baby who commands the attention that previously was his. Naturally the older child feels this keenly and becomes jealous of the baby. His natural curiosity and interest in the new baby often meet with rebuff. He is hurt and bewildered because his mother does not devote her attention to him as she did before the baby arrived. He may try to attract attention by putting on "monkey shines", or he may resort to infantile habits in an endeavor to compete with the newcomer. If he becomes ill, he is more likely to succeed. I was called in recently to see a child who, the mother told me, had never been ill before. The mother had recently come home with a new baby, and after a few days the older child came down with an acute illness, an ear infection which seemed more difficult than usual to clear up. In regard to alleviating these situations the doctor can help a lot. Of course, mothers are going to come home with new babies, and some mothers are going to have to work; but when these situations arise the doctor should be able to show the parents the dangers that exist and should help them devise some way to minimize them. He should tell them that the older child who has been on the scene longer and has been the center of love and affection will feel keenly being relegated to the sidelines. He should advise them, too, that while certainly the small baby should get love and affection in abundance, the older child should get his share too, and should not be pushed away, chided or slapped because the parent is irritated by his behavior. Improper handling may leave a mark on the child which might affect his future behavior adversely, and, in addition, any acute illness resulting from the emotional trauma might be severe and damaging physically and might establish an undesirable reaction pattern.

Floral Eponym (51)

LINNAEA

KARL VON LINNÈ (LINNAEUS), 1707-1778

The Twinflower was Linnaeus' favorite flower and was appropriately named for him as he discovered it in Lapland where he was sent by the Royal Society on his first scientific expedition. The one or two species are woody, trailing evergreen plants of the honeysuckle family. They grow in the cooler parts of the north temperate zone extending north to Alaska and northern Siberia. The twin flower requires partial shade, good drainage and an acid soil. The *L. americana* differs from *L. borealis* only in the leaf margins, which are hairy-fringed only near the base. The L. americana is commonly called "deer vine" and "twin sisters."

Linnaeus' fame as a scientist is well known. That he was a physician, and a good one, is not so well known. His great love, of course, was botany which he made into a science. He practiced medicine, but only to make money: Once at Falun so as to be able to go abroad to get his degree, and once at Stockholm to enable him to marry. At the latter place he was so successful that he was called to practice at the palace. He was opposed to bleeding and was the father of simple prescribing. A delightful account of his life is to be found in the *Canadian Medical Association Journal* for April (**56**:440, 1947).

XUM

CANCER OF THE COLON AND RECTUM EMPHASIZING ASEPTIC PRIMARY ANASTOMOSIS FOR LESIONS OF THE COLON*

FRANK S. JOHNS, M.D.,
and
WILLIAM A. JOHNS, M.D.,
Johnston-Willis Hospital,
Richmond, Virginia.

A timely view on the treatment of cancer was expressed in (c.) 1350 by Chauliac, so-called father of surgery in France. He "believed in cutting out cancer with a knife at an early stage." No one in 600 years has questioned that sound opinion. *What* to do, and *when* are plain. The question *how best* to accomplish the imperative "cutting out" procedure has remained defiant through the history of cancer surgery. Particularly, the surgical technique of carcinoma of the colon and rectum has resisted standardization. It has changed now and then, but with little noticeable "development," although the formidable problem of the successful resection of these sinister lesions has occupied the best and most courageous minds in our annals. Even today, in the light of modern scientific knowledge, experience, and equipment, the "operation of choice" is still debated.

Our presentation deals with the surgical treatment of cancer of the colon and rectum as done by Drs. F. S. Johns, D. S. Daniel, and W. A. Johns from 1938 to 1946. We shall present our series of 110 cases in some detail, with emphasis on the advantages of the aseptic immediate anastomosis technique. We were all three trained in the modified Bloch-Paul-Mikulicz procedure, and feel qualified to discuss its disadvantages as well as our preference for immediate anastomosis.

In 1913 when one of us (F.S.J.) began his surgical training, the Mikulicz delayed anastomosis was the most popular operation for cancer of the colon. It has remained in general favor ever since, and no great improvement in its results can be noted through the past thirty years. In the same period general surgery has advanced rapidly in many fields, particularly those of the brain, chest, lungs and vascular system. Surgery of the colon, from a technical viewpoint has changed little for the better. This is a broad statement, but is validated by a comparison of our actual progress in this field with advances made in many other departments.

In 1916, C. H. Mayo reported a series of cases done by the Bloch-Paul-Mikulicz procedure. He had an operability then of 71.8 per cent and a mortality of 15.5. In 1945, the Lahey Clinic reported 77 resections of the right colon, 62 of which were done by the two-stage modified Mikulicz procedure. For the remaining 13 cases the one-stage primary resection with immediate anastomosis was carried out. There were no deaths following the one-stage operation. But the Lahey Clinic still reports that the modified Mikulicz is used on all their cases of cancer of the left-half and transverse colon, of the splenic flexure, descending colon and upper sigmoid. In spite of the vast literature on this subject in current journals, it appears that the Mikulicz operation with modifications, as originated in the last decade of the past century, is still generally popular and practiced by the large majority of those doing colon surgery.

Change is not progress. But after 50 years we take issue with Paul-of-Aegina, 7th Century medical sage, who wrote: "The ancients have said all that can be said on the subject." In 1938 one of us (W.A.J.) returned from a thorough schooling in the one-stage aseptic anastomosis technique, utilizing the newly devised Stone clamp. Since 1940 we have consistently done the one-stage primary aseptic anastomosis for cancer of the colon, and have found the Stone clamp an invaluable tool. For its smaller size, lightness, and adaptability the Stone clamp is for us an improvement over all former instruments for its purpose. Stone's own series to date includes about 200 cases operated on by this method.

No essay on intestinal anastomosis can omit a tribute to the Frenchman, Jean Francois Reybard (1795-1863). An experimental surgeon and anatomist, Reybard carried out the first successful resec-

*Read at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

Discussion of this and Dr. A. Stephens Graham's paper appears after Dr. Graham's paper.

tion with immediate anastomosis for cancer of the colon. This he did on May 2, 1833 (note *not '23,* see ref.) The patient recovered and lived for one year after operation. Reybard's case was not reported before the Academy of Medicine of France until July 30, 1843. His original article was entitled "Report of a malignant tumor of the colon; resection of the tumor and of the intestine; direct and immediate anastomosis of the two ends of that organ. Recovery."

Immediate anastomosis was perhaps already a subject of controversy, but according to his biographer, Reybard's contribution served as "the point of departure" from which modern colon surgery evolves. His work "opened the way" to the great Vienna surgeon, Billroth, *et al.*; to the Londoner, John Marshall; to Czerny, the Bohemian; and to von Volkman. The last named pioneer, as Professor of Surgery at Halle, Germany, in 1878, was the first to excise the rectum for cancer. Von Volkman's classic procedure, as later carried out and perfected by Miles, remains the standard operation for cancer of the rectum and recto-sigmoid.

A native of Poland, Johann van Mikulicz-Radecki (1850-1905) was Billroth's most famous pupil. The delayed-anastomosis procedure named for him was a departure in principle and technique from that of his preceptors. It is interesting today to observe a cycle in the history of colon surgery, as regards immediate anastomosis: from Reybard to Billroth to Bloch, Paul and Mikulicz to Stone.

Prominent among current contributors in the literature of this subject besides Stone are the familiar names: Parker, Kerr, Rankin, Lahey, Coller, and Wangensten. In Virginia our discussion on surgery of colon and rectum is comparatively scant. We find that only one published article on cancer of the colon with a case report has been read before the Medical Society of Virginia; this was read by Dr. J. S. Horsley in October, 1935. Two published articles on carcinoma of the recto-sigmoid with reported cases have been read before this Association. In 1930 Dr. S. H. Graves reported a series of 12 cases, 5 of which were operated on. In 1936 Dr. A. Stephens Graham reported 32 consecutive cases of cancer of the recto-sigmoid and rectum, of which 21 were operated on.

Eleven other articles and abstracts on these subjects have appeared in the VIRGINIA MEDICAL MONTHLY since that of Dr. Charles G. Cannaday (Vol. 11, 1897) which describes the first successful immediate intestinal anastomosis we find recorded in Virginia. Dr. Cannaday used the Murphy button for his procedure. The others include: (1) a case of carcinoma of rectum and recto-sigmoid operated on by Dr. George Ben Johnston on July 12, 1899, as listed by Dr. Charles R. Robins in "A Report of 125 Consecutive Abdominal Operations" published April 12, 1901. (2) A "Cancer Case" reported by Dr. Stuart McGuire, treated with temporary success by delayed anastomosis in May, 1902. (3) A "Case of Carcinoma of the Cecum with Recovery," operated on by Dr. Paul Howle, published February, 1919. (4) A "Survey of the Literature of Cancer of the Rectum" by Dr. William L. Sibley in 1939. Other articles on the colon in our journal include: (5) an abstract of Hirschman's statement before the American Proctological Society in 1914: "In malignant growths of the sigmoid colon, excision with immediate anastomosis is the ideal indication." (6) "Some Features of Cancer of the Colon and Rectum" published January, 1928, by Dr. Horsley, recommending Kerr's technique and the one-stage anastomosis. (7) "The Diagnosis of the Large Bowel," in 1931 by Dr. E. H. Lehman, referring to "17 unselected cases" at the University of Virginia Hospital, 10 of which were colon cases, 7 were rectum. (8) A second article by Horsley on Cancer of the Colon and Rectum, without case reports, in 1932. (9) "Carcinoma of Colon in Childhood" in 1937 by Dr. H. J. Warthen, reporting a case with a survey of the literature on this subject.

The etiology of carcinoma of the large bowel is still undetermined. In fact, we know as little about it as we know about the cause of cancer anywhere. We are less certain than Professor Nussbaum who wrote in 1875 that "as causes of cancer may be cited old age, chagrin and great mental anxiety." We are perhaps a little closer to a long-sought truth than was our colleague who published an article on "lacing" as the reason for cancer of the uterus.

The most popular and likely cause of these lesions, as advanced to date, is the association of polyps with carcinoma of the colon. What per cent of carcinomas develop on polyps is not definitely determined; but it is certain that polyps undergo malignant degeneration. The percentage of benign polyps which become malignant is also unknown. It has been stated that carcinoma occurs eight times as often in the sigmoid and rectum as elsewhere in the

XUM

colon. Polyps seem to follow about the same distribution, and this arouses interesting speculation. It appears also to substantiate the opinion that 40 to 50 per cent of polyps become malignant.

Whatever the cause, cancer of the colon and rectum is a hostile and treacherous foe. In 1945, 2,637 deaths from cancer were reported to the Virginia Bureau of Vital Statistics. Of this number, 476 or 17.6 per cent were recorded as cancer of the intestines and rectum.

The early symptoms of malignant lesions of the large intestine are the symptoms in which we are primarily interested. The classic text-book symptoms are late in appearing. During its passage through the colon, the character of the contents of the bowel changes from a liquid or semi-solid consistency on its entrance into the right side to that of a firm, formed stool in the left side. It is natural that any lesion encroaching on the lumen of the colon should produce different symptoms at different sites during this transition.

Two early symptoms are definite indications of carcinoma of the colon or rectum. These are: (1) any change in bowel habits, and (2) blood in the stool. A change in bowel habits should be defined as anything from a slight irritating sensation to an inability to get the bowels to move. There may be an increase in gas and a feeling of inability to empty the bowels completely. As the lumen of the bowel becomes obliterated, constipation follows. The colicky pain of early obstruction is frequently seen in colon lesions; a dull aching pain over the lower back may be associated with lesions of the rectum. Bleeding or blood in the stool is caused by ulceration; carcinoma of the colon and rectum ulcerate early, thereby producing this early symptom which all physicians should regard as a danger signal. In carcinoma of colon and rectum the ulceration does not heal, and this symptom is usually present in lesions of the left side, especially in lower lesions. In lesions elsewhere, the bleeding usually makes its appearance as occult blood, so it is essential to examine the stools carefully for its presence. A marked anemia is frequently present in carcinoma of the right colon.

All of our cases of carcinoma of the rectum gave a history of some change in bowel habits, and 84 per cent had a history of the presence of blood in the stool. Eighty-eight per cent of our cases of carcinoma of the left colon gave a history of some obstructive symptoms such as pain, cramps, nausea, distension, constipation, or inability to get the bowels to move. The predominant symptoms of lesions of the right colon were diarrhea, bloody stools, pain in the r. l. q., the presence of a mass, soreness on right side, weakness, and anemia.

A careful physical examination is most important, and we cannot over-emphasize the value of a digital rectal examination and a proctoscopic and sigmoidoscopic examination in all suspected cases of such malignancy. In a large percentage of cases of carcinoma of the large intestine, the lesion occurs in the region where it can be felt or seen by these simple examinations. Frequently, in lesions of the right colon a mass can be felt by abdominal palpation.

X-ray of the colon may be most helpful, but it is not fool-proof in diagnostic value. A negative X-ray is not conclusive evidence that no lesion exists. Dr. Dan F. Jones stated that roentgenology as an aid to diagnosis is accurate in 65 per cent to 85 per cent only of malignant lesions of the colon, and is accurate in an even lower percentage of lesions of the rectum.

Meticulous pre-operative preparation is essential. Every patient must be properly prepared from a general physical standpoint. If anemia exists, transfusions should be given until a normal blood picture is maintained. Both blood picture and chemistry should be normal; any abnormality thereof can usually be corrected by proper pre-operative dietary measures. When obstruction is present, intravenous methods are used. Radical operative procedures should be delayed until the patient's general physical condition has reached its maximum. The operation for cancer of the colon or rectum is a major procedure, but it is not an emergency operation.

Good surgery in this field, i.e., a low mortality rate and good end-results, depend on the proper preoperative preparation of the bowel. If obstruction to any degree exists, it is imperative that the bowel be decompressed. No general rule can be laid down on how to accomplish this objective. Each case must be treated on its merits. For a partial obstruction of no great degree a liquid diet, mild cathartics and enemas may accomplish the wanted result. In cases of more complete obstruction, decompression must be obtained either by use of the Miller-Abbott tube or by a temporary ileostomy, cecostomy or colostomy above the lesion. In lesions

of the left side, when necessary, a temporary transverse colostomy is preferred. In lesions of the right side decompression can usually be obtained through proper use of the Miller-Abbott tube. In our cases the use of this tube has prevented the necessity of performing many a temporary colostomy; in our series of 47 colon cases we found it necessary to perform 5 cecostomies and two colostomies as a decompression measure. We have avoided ileostomies in conjunction with the operation, since reports show that this procedure increases mortality and is both unnecessary and unwise. However, radical surgical procedures cannot be carried out in the presence of a distended or edematous bowel. We believe the "leakage" sometimes reported as following intestinal anastomosis may be due to such an attempt to suture a distended or edematous bowel.

Before operation the bowel should have been thoroughly cleaned. Our patients are placed on a low residue diet on admission; mineral oil and a mild saline cathartic and enemas are given daily. To eliminate all non-digestive residue the diet is changed to liquids about three days before operation. A thorough cleansing enema is given the morning of operation. The use of sulfa drugs by mouth to decrease the bacterial flora of the intestinal tract may be helpful. At present we are using sulfasuxidine. In our series of 39 primary aseptic end-to-end anastomoses, 20 received some sulfonamide pre-operatively, and 19 received none. In our 43 rectal cases, 32 received some sulfonamide, and 11 received none. We do not advocate the local intra- or extra-peritoneal use of sulfonamides. The bladder should be emptied by catheter just prior to operation.

General anesthesia by an experienced M. D.-anesthetist is our choice and custom. Intravenous fluids are started when the patient reaches the operating table and blood is substituted as needed. Shock is much easier to prevent than to treat. Almost 100 per cent of our cases receive blood during the course of operation.

By making full use of the improved Stone clamps we find no excuse for contamination in surgery of the colon. After the clamps are applied the gut is excised with an electric knife and the borders are thoroughly coagulated. This renders the field of operation entirely aseptic. After putting in the sutures (as shown in the slides) and removing the clamps, we have never had "a leak". Nor do we feel that our technique is superior to that of other qualified operators doing colon surgery. Success is largely due to the preparation given each patient and to the instruments now available.

For our cases of resection of the recto-sigmoid and rectum the Miles operation has been most successful in our hands. It provides opportunity to carry out a complete dissection in the pelvis, and at the same time it can be done in one stage. In recent discussions on this subject we mark a growing tendency to preserve the sphincter muscle. We have made no attempt to follow this lead. If a high operability is to be maintained in cases of carcinoma of the rectum and recto-sigmoid, the operation must be radical with a complete excision of all glands. We believe that if consideration is given to sparing the sphincter, the operator will have this idea constantly before him and a less radical resection may be performed. A higher percentage of recurrences will result. Therefore, we do not at present subscribe to this procedure, however tempting. In several of our cases, both of colon and rectum, we have excised the local growth in spite of the presence of a limited liver metastasis. We feel that life is both prolonged and made more comfortable by this radical procedure.

Post-operative treatment varies according to the type of operation performed. Following primary aseptic anastomosis, patients are allowed nothing by mouth for the first 48 hours, then only water for 24 hours, then clear liquids. Their diet gradually increases until by the sixth post-operative day they are usually on a soft diet. Fluid and protein balance are maintained by the intravenous route. Blood transfusions are given as indicated. If any distension occurs, a Miller-Abbott tube is passed. Enemas are avoided as being definitely contra-indicated. On about the fourth or fifth post-operative day, these patients are started on mineral oil, oz. 1, twice daily. The generally accepted rules of post-operative care are also adhered to.

Following the one-stage abdominal perineal procedure, post-operative care is similar to that for colon resections, except for the local care of the colostomy and of the perineal wound. The colostomy is usually opened after 24 hours and is irrigated on the third day. Aluminum paste is used locally around the colostomy to protect the skin and wound. We rarely encounter any infection in these wounds, and we always place the colostomy in the mid-line

XUM

through the incision. The packing used inside the perineal wound is partially removed on the third day, with subsequent partial removal daily, until it is completely removed by the fifth or sixth day after operation. This wound is irrigated daily until healing occurs.

It is unfortunate that some sentiment exists against colostomies. This is not entirely confined to the laity. The physician often expresses himself too freely on this question to his patient's detriment. Surely a colostomy is not an ideal arrangement. It is a regrettable compromise; but a compromise which is compatible with a useful life, and actually few patients complain about it. Our patients must be led to realize that a colostomy is a life-saving device and absolutely necessary.

The most frequent complication in this type of surgery is the inability of the male patient to void after abdominal perineal resection of the rectum. Many of these cases are in the age group in which some hypertrophy of the prostate exists. An indwelling catheter is always inserted just prior to operation. We have tried in some cases leaving this catheter so placed for several days, and in others have removed it immediately after the operative procedure and catheterized the patient as indicated. Some are able to void, but a high percentage have difficulty. We feel that getting these patients out of bed early is helpful in treating this complication, as well as in preventing others, but a wholly satisfactory solution for it has not been found.

Urinary infection is another post-operative complication occasionally seen. We treat these infections with the various chemo-therapeutic agents available to date.

Recent reports from several outstanding clinics furnish interesting statistical comparisons with our own series. Mayo and Lovelace on malignant lesions of the cecum and ascending colon state: "In the 590 cases in which operations were carried out with view of cure there were 315 in which a one-stage resection was performed, 246 in which a two-stage was utilized . . . 29 in which more than two stages were employed." Hospital mortality in this report was: for one-stage 22.2%; for two-stage, 28.9%. Two-stage mortality included 15% after first operation, 13.9% after second operation. There were 10 deaths in the third group of 29 cases. As to survival, the one-stage operation showed a higher rate than the two-stage, even disregarding the high mortality rate of the latter procedure. Hospital stay for these one-stage patients averaged 21 days; for two-stagers, 45 days.

In December, 1945, Waugh and Custis reported 50 cases operated on at one-stage, with 2 deaths, a 4% mortality. Coller and Ransom had 8.9% operative deaths. Coller and Vaughan reporting in 1944 state: "For many years we employed the exteriorization operation in our clinic. First Mikulicz, and then the Rankin obstruction resection with far better results. We report 68 patients done by one-stage procedure . . . This aseptic method has become increasingly popular with our surgeons."

Since 1938 we have seen 110 cases of carcinoma of colon and rectum with a total operability of 81.8% and an operative mortality of 4.4%. Of this number, 104 cases were admitted to the Johnston-Willis Hospital. Of 63 cases of carcinoma of the colon, 47 were operable, 16 inoperable, an operable rate of 74.6%. A primary end-to-end aseptic anastomosis was done in 39 of these cases without a single death. A Mikulicz type of exteriorization was carried out in 7 cases with 2 deaths. Causes of death in these two cases were (1) a pulmonary embolus, (2) septicemia. We have not used the Mikulicz operation since 1940. One patient in this group, aged 83, refused operation. The records of six cases were incomplete and are not included in our following statistical study. The follow-up of our series will be reported later.

Some type of operative procedure was carried out in 12 of the 16 inoperable cases. Two of these presented a perforation of the sigmoid at the site of the lesion and died of generalized peritonitis. In 6 inoperable cases a pre-colostomy was done. Thirteen of the sixteen inoperable patients had lesions of the left side of the colon; 3 had lesions of the right side.

Forty-seven cases of carcinoma of the rectum were seen. Three of this group were inoperable; one refused surgery. Thus, more than 90% were found operable in this group. Of these 43 operable cases, 33 had the one-stage abdominal-perineal Miles resection of the rectum. Nine had posterior resections (Kraske). One patient, aged 83, had a local cauterization of his lesion. The cases that had posterior resections were bad surgical risks, with one exception. This man had a very low lesion. He is living and well after five years. Of the 3 inoperable cases one had a cecostomy; one, a local

XUM

cauterization; and on the third no surgical procedure was attempted. There were two operative deaths in this series. Both occurred following abdominal-perineal resection of the rectum. As proved by autopsy the cause of death in one case was generalized peritonitis following disruption of wound. This patient had metastasis of the liver. In the second fatal case death followed a massive pulmonary embolism.

LESION:	No. CASES	PERCENTAGE
Cancer of rectum	47	46.1
of recto-sigmoid	11	10.5
of sigmoid	18	17.3
of descending colon	3	2.7
of splenic flexure	5	4.7
of transverse colon	5	4.7
of hepatic flexure	4	3.7
of ascending colon	7	6.6
of cecum	4	3.7
Carcinoma of colon	Male: 21	Female: 36
Carcinoma of rectum	Male: 24	Female: 23

Average age carcinoma of colon—58 years.

The youngest patient was 34.

The oldest patient was 84.

Average age carcinoma of rectum—60 years.

Youngest, 38 years.

Oldest, 84 years.

SUMMARY:

We report a series of 110 cases of cancer of the colon and rectum seen in the past eight years. Total operability, 81.8%; total mortality, 4.4%. In our 63 colon cases, operability was 74.6%. Mortality, following aseptic immediate anastomosis using the Stone clamp on 39 of these cases: 0. Seven Mikulicz-type operations were done prior to 1940 with two deaths. Of our 47 cases of cancer of the rectum 33 had the standard Miles operation; operability, over 90%, mortality, 6%.

Certain advantages stand out in the summary of our cases of cancer of the colon done by the one-stage aseptic anastomosis technique. The radical resection is more completely done. The patient's stay in the hospital is cut in half; this is obviously of great economic advantage to the individual, and is a saving of bed-space to the hospital. The mental state of these patients is also signally improved by the one-stage operation. No Mikulicz patient is happy with his double-barreled open colostomy, no matter how well it is functioning, or how thorough the explanation of it has been beforehand. Most important of all these advantages, as reported in the literature, the mortality of colon surgery is reduced by the one-stage, aseptic anastomosis operation. In our series of 39 cases there was no mortality.

BIBLIOGRAPHY

Behrend, M.: *S.G.O.* **65**:505, 1937.

Behrend, M.: *J. International College of Surgeons* **8**: June, 1945.

Cannaday, C. G.: *Va. Med. Semi-Mo.* **2**:143, 1897.

Cattell, R., and Colcock, B. P.: *Surg. Clinics of N. America* **26**: No. 3, June, 1946.

Coller, F. A., and Ransom, H. K.: *S.G.O.* **73**:304, 1944.

Coller, F. A., and Vaughan, H. H.: *Tr. South. Surg. Assn.* **56**:11, 1945.

Garrison, F. H.: History of Medicine, pp. 107, 140, 625, 626, 627.

Gehrels, E.: *S.G.O.* **65**:528, 1937.

Graham, A. S.: *Va. Med. Mo.* **64**:143-145, 1937.

Graves, S. H.: *ibid.* **57**:707-710, 1931.

Hirschman, L. J.: *Va. Med. Semi-Mo.* **19**:355, 1914.

Howle, P.: *Va. Med. Mo.* **45**:282, 1919.

Horsley, J. S.: *Va. Med. Mo.* **54**:612-617, 1928.

Horsley, J. S.: *Ibid* **60**:199-207, 1933.

Horsley, J. S.: *Ibid* **63**:197-204, 1936.

Jones, D. F.: *Tr. Southern Surg. Assn.* **43**:125, 1930.

Lehman, E. P.: *Ibid* **58**:577-583, 1931.

Maingot, R., Dukes, C. E., and Lloyd-Davis, O. V.: *Proc. Royal Soc. of Med.* **38**: No. 7, May, 1945.

Mayo, Charles H.: *Tr. South. Surg. Assn.* **29**: 1916.

Mayo, Charles H., and Lovelace, W. R.: *S.G.O.* **72**:698, 1941.

McGuire, S.: *Va. Med. Semi-Mo.* **7**:49-55, 1902.

Meyer, K. A., Sheridan, A., and Kozell, D. D.: *S.G.O.* **81**: November, 1945.

Von Mikulicz, J.: *Tr. Amer. Surg. Soc.* **21**:124, 1903.

Nussbaum, V.: *Va. Med. Mo.* **2**:187, 1875.

Parker, E. M., and Kerr, H. H.: *Johns Hopkins Hosp. Bulletin* **19**: 1908.

Pemberton, J. deJ., and Whittaker, L. D.: *S.G.O.* **65**:92, 1937.

Pierpont, R. Z., Peterson, F. R., and Dulin, M. D.: *Surgery* **18**: November, 1945.

Rankin, F. W., and Olson: *S.G.O.* **47**: 1928.

Rankin, F. W., and Olson: *S.G.O.* **56**: 1933.

Rankin, F. W.: *Ibid* **72**: 1941.

Robins, C. R.: *Va. Med. Semi-Mo.* **6**:1-5, 1901.

Reybard, J. F.: *Bul. de l'Acad. de Med.* 1843-44 t. 9, 1031.

Sabioncello, B.: *Reybard Sa Vie et Son Oevre,* M. Vigne, Paris, 1930.

Sibley, W. J.: *Va. Med. Mo.* **66**:663-666, 1939.

Stone, H. B.: Method of Intestinal Anastomosis with a New Clamp, *S.G.O.* **65**:383, 1937.

Stone, H. B.: *Surgery* **14**: September, 1945.

Vaughan, G. T.: *Va. Med. Semi-Mo.* **8**:549, 1904.

Wangensteen, O. H.: *S.G.O.* **81**: No. 1, 1, 1945.

Warthen, H. J.: *Va. Med. Mo.* **64**:140, 1937.

Waugh, J. M., and Custer, M. D.: *S.G.O.* **81**: December, 1945.

XUM

CURRENT TRENDS IN SURGERY OF THE COLON AND RECTUM FOR CANCER*

A. STEPHENS GRAHAM, M.D., M.S.,
Richmond, Virginia.

A review of the surgical literature of the past five years discloses a decided trend toward elimination of colostomy, either temporary or permanent, in the treatment of cancer of the colon, rectosigmoid, and rectum. Since this represents a revival of procedures long ago discarded by a majority of surgeons, it would seem appropriate at this time to study the available evidence and adopt a sound attitude regarding the problem.

This revival of operations designed to eliminate abdominal anus and to preserve the rectal sphincter marks the completion of a hundred year cycle of surgery of the large bowel for cancer and the commencement of another era with methods almost identical to those which were employed during the first half of this cycle. The earliest operations on the colon consisted of primary anastomosis after resection. The mortality from peritonitis, however, was so disastrous that resection of the colon fell into disrepute until Mikulicz in 1902 popularized the multiple stage operation first performed by Block in 1892. Rankin subsequently developed the method into a radical measure of wide adaptability, high rates of five-year survivals, and relatively low immediate mortalities. Resection of the rectum for cancer underwent an even more spectacular process of evolution, from the simple amputation of the lower rectum introduced in 1826 by Lisfranc, through the progressively more elaborate procedures of Verneuill (1873), Kraske (1885), and Hochenegg (1888), all of which were directed toward establishment of perineal anus, with or without preservation of sphincteric mechanism, and, finally, the epoch-making radical, combined abdominoperineal resection introduced by Miles in 1908 and which, in the opinion of most surgeons, still remains the most satisfactory operation so far devised. By almost universal agreement it permits in experienced hands the lowest mortalities, the highest operability rates, and the greatest percentage of cures. The sole objection which has been raised in regard to this operation is that permanent colostomy is one of its essential features. For this reason, alone, within the past several years, a few surgeons, notably Babcock, Bacon, Wangensteen, Dixon, and Waugh, have resorted to modifications of the operations of the pre-Miles abdominoperineal era.

The obligation of the surgeon in the treatment of carcinoma of the large intestine is to accomplish as radical an operation as the individual patient can stand. This invisions not only a wide excision of the segment which harbors the growth, but the extensive removal of the contiguous gland bearing tissue as well. Esthetic considerations, such as avoidance of colostomy, are secondary to this main purpose. It is, therefore, essential that we have proof that the revised technics, especially those devised for anterior resection of the rectosigmoid and rectal ampulla, with immediate restoration of continuity, offer the maximum chance for cure. This has not as yet been determined, and, as was the case with the abdominoperineal operation, it will take a considerable time in which to do so.

Primary Anastomosis of the Colon. Most surgeons, it is believed, are now in agreement that in properly selected cases primary suture of the colon is the operation of choice. Nevertheless, exteriorization procedures, such as the Rankin obstructive resection in which temporary colostomy is required, will continue to be indicated under certain circumstances as in excessively fat people with short, heavy mesenteries and in cases in which decompression has been unsatisfactory as indicated by thick, dilated bowel proximal to the obstructing lesion. The principal danger in the current trend toward primary anastomosis of the colon is that, perhaps, the pendulum has swung too far in the opposite direction; many instances of improper selection of cases have been recently noted. Adjuncts, such as the Miller-Abbott tube and intestinal antiseptics, although of considerable value, do not, however, overcome all of the handicaps mentioned above and which usually preclude employment of the ideal, single stage maneuver.

Various factors have been ascribed by different surgeons as being responsible for lowering the mortality rate in primary anastomosis of the colon.

*Read at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

There exists a considerable difference of opinion as to which of these are most important. Wangansteen and Waugh make an issue of the importance of a "closed", so-called aseptic method of anastomosis; Karl Meyer and others make an issue of employing the "open" method. Whipple has been the principal advocate of employing the Miller-Abbott tube to decompress the colon proximal to the suture line, whereas Wangensteen contends that a competent ileocecal valve usually prevents the removal of accumulated fluids and gas by siphonage. A marked reduction in the mortality rate is claimed by those who routinely establish complementary proximal drainage by such means as appendicostomy, cecostomy or colostomy. Other surgeons, notably Campbell, Wangensteen, Waugh, and Meyers, do not consider that proximal decompression routinely is necessary. This difference of opinion also extends to the employment of sulfonamides. A majority favor the administration of succinylsulphathiazole or sulfathalodine as an intestinal antiseptic, and the installation of sulfa crystals into the abdomen is favored by many. A few, however, including Wangensteen, make no use of the sulfonamides in any form.

Primary Anastomosis of the Rectosigmoid and Rectal Ampulla. Considerable impetus has been given to the revival of operations designed to preserve the rectal sphincters in instances of carcinomas of the rectosigmoid and rectal ampulla by the publications of Gilchrist and David (1938) and Coller (1940). Their pathologic studies of lymph nodes in specimens excised in the abdominoperineal operation for rectal carcinoma revealed little evidence of retrograde or lateral lymphatic spread in curable lesions. There is, however, a difference of opinion even among the principal advocates of sphincter preserving measures as to the proper interpretation of these findings. Bacon states that it may be assumed that the inferior zone of spread is relatively unimportant, and that, therefore, the sphincter musculature may be preserved, provided the lower border of the growth is 3 centimeters or more above the ano-rectal line. Wangensteen, on the other hand, states that despite the failure of Coller and his associates to find microscopic evidence of lateral lymphatic spread in lesions lying more than 3 centimeters above the ano-rectal line, he is convinced from personal experience that an operation which does not excise the sphincter muscles in juxtaposition to the bowel invites local recurrence and is, therefore, contraindicated. He cites instances of recurrence in five of his cases in which ampullary resection was accomplished, and although the procedure was palliative in four cases, he comments: "Yet, even in these patients abdominoperineal operation would have given better assurance against local recurrence." Even though he is an enthusiastic advocate of segmental resection and anastomosis in suitable small low-lying lesions and in most lesions of the upper rectum, Wangensteen, nevertheless, admits that these operations compromise somewhat on the extent of excision of the rectal wall distal to the lesion and that "from the standpoint of cure of rectal cancer, obviously the abdominoperineal operation is the best procedure."

It would appear that the crux of the situation in the current operative trend for cancer of the rectum is decided aversion to colostomy on the part of certain surgeons. The special consideration which compels interest in such procedures, states Wangensteen, is preservation of sphincteric function. Moreover, such an operation, he finds, appeals at once to the patient to whom the thought of a colostomy is ordinarily abhorrent and frequently revolting. He, nevertheless, adds this frank statement: "An operation which must be defended on the thesis that it may be a satisfactory substitute for patients who are more interested in preservation of function than in cure, is obviously not a good operation for cancer." Many of us will concur heartily in this opinion.

Bacon is even more strenuously opposed to colostomy. He wonders how many patients have died needlessly by refusing colostomy where radical surgery by other means was not made available to them. Too often, he believes, "colostomized patients are socially ostracized, a train of psychoneurotic manifestations may be suffered even to the point of suicide, marriage may be interfered with, and many are unfit for employment and thereby refused a means of livelihood." He cites histories from his and Babcock's files to substantiate this and states that to date they have transplanted the colostomy to the perineum, or anastomosed the colonic to the rectal stoma in 51 instances. These experiences are without question unique.

Many other surgeons of wide experience in the field of rectal carcinoma have recorded contrary opinions as regards colostomy. Collectively, their attitude might accurately be summed-up in the fol-

XUM

lowing comment by Arthur W. Allen in a recent editorial in *Surgery, Gynecology and Obstetrics* entitled *Restoration of Continuity versus Cure in Carcinoma of the Rectum*: "Colostomy is not burdensome to thousands of grateful individuals who have been cured of cancer. With reasonable care, they are free to carry on their business, athletic and social functions, without offense or inconvenience. Sentimental abhorrence of the colostomy by patient and physician has wasted many useful lives. Although none looks forward to a colostomy life with avid joy, few will refuse it if the entire situation is explained to them. Taught the simple principles concerning care of the colostomy, nearly all of these patients are comfortable and happy." And to this we might appropriately add the comment of D. B. Pfeiffer in a discussion of operations, the main purpose of which is avoidance of colostomy: "The chief and most vociferous objectors to colostomy are those who do not have them and do not need them to remain alive. It is hoped that no one will advocate or condone deliberate sacrifice of sound cancer surgery for any lesser consideration. Of course, the uncontrolled perineal colostomy is infinitely inferior to the abdominal anus in all respects except sentimental nonsense."

It is my own belief that colostomy is a basic part of any operation which offers the best chance of longevity to the individual suffering from cancer of the rectum and most individuals with cancer of the rectosigmoid. The average patient's abhorrence of colostomy can be overcome readily by anyone who is, himself, convinced that it is a tolerable state, compatible with a normal, comfortable, contented, useful and profitable existence. Infinite tact and patience will be rewarded by almost invariable acceptance of artificial abdominal anus.

BIBLIOGRAPHY

1. Allen, Arthur W.: *Surg. Gyn. Obst.* **82**:490, 1946.
2. Babcock, W. W.: *Surg. Gyn. Obst.* **75**:485, 1942.
3. Bacon, H. E.: *Surg. Gyn. Obst.* **81**:113, 1945.
4. Campbell, O. J.: *Minnesota Med.* **23**:215, 1940.
5. Coller, F. A., Kay, E. B., and McIntyre, R. S.: *Surgery* **8**:294, 1940.
6. Dixon, C. F.: *Surgery* **15**:367, 1944.
7. Gilchrist, R. K., and David, V. C.: *Ann. Surg.* **108**: 621, 1948.
8. Miles, W. E.: *Lancet, Lond.* **2**:1812, 1908.
9. Meyers, Karl A., Sheridan, Alfred, and Kozoll, Donald D.: *Surg. Gyn. Obst.* **81**:507, 1945.
10. Wangensteen, Owen H.: *Surg. Gyn. Obst.* **81**:1, 1945.
11. Waugh, John M., and Custer, M. D.: *Surg. Gyn. Obst.* **81**:593, 1945.

DISCUSSION OF PAPERS BY DRS. JOHNS AND GRAHAM

DR. J. M. EMMETT, Clifton Forge: I was invited to discuss the paper by Dr. Johns, but inasmuch as these papers are integral parts of the same subject I suppose my discussion may be directed to both.

The paper by Drs. Frank and Bill Johns represents a very excellent review of the development of surgery of the colon and rectum. The work which the Drs. Johns are doing in this field indicates a decisive interest in the problem and an excellent progressive accomplishment.

The major thought which the Drs. Johns have developed is that there should be a widespread excision of the malignant lesion of the colon with an immediate anastamosis. They and others have established the fact that such an accomplishment may be effected with no increase in operative mortality and without lowering the rate of operability; and, further, they have established that the incidence of cure is equally as great as it is with the various exteriorization operative procedures. All of us must have a degree of enthusiasm for any operative procedure which enables us to accomplish a satisfactory result by one stage effort.

Each year I find that we are doing fewer and fewer exteriorization procedures and more direct anastamoses. I am not able, however, to say that in any particular period we have divorced ourselves from the various modifications of the Mikulicz procedure, because I still think it will serve in certain instances a distinctive purpose. I have in mind those patients who come to the operating table with a moderate degree of edema in the bowel above the lesion, as result of a recent obstruction, or as a result of an incomplete obstruction at the time of operation. I have not been sufficiently brave to do an immediate anastamosis on this group of patients.

I want to agree *in toto* with what the Drs. Johns have said about the Miles operation as being a standardized procedure for one stage removals of cancer of the rectum and recto-sigmoid. We have attempted the many modifications suggested in the literature for the treatment of cancer of the rectum and recto-sigmoid, and I am convinced that the Miles procedure more completely fulfills the requirements of complete excision of the neoplasm with its glands and gland bearing structures than is offered in any other operative effort. The fact that this can be accomplished in one stage is further gratifying.

A very considerable enthusiasm is being manifested by certain surgeons and groups encouraging the preservation of the anal sphincter and a restoration of continuity of the large bowel in high recto-sigmoid lesions. I cannot believe that this is a basically sound effort and, when there is any element of doubt whatsoever as to one's ability to deliver the bowel and do a widespread excision for lesions in the recto-sigmoid, then I feel that the sphincter should be sacrificed unhesitatingly. The Drs. Johns did not emphasize the training which I be-

lieve should be employed in these people who have had a Miles operation to establish a regulated bowel function. I think Dr. Frank Lahey a few years ago called attention to the bowel habit which might be established in this group of patients by having them given regularly at the same time each morning a bowel irrigation. We have followed this routine religiously and our patients are very gratified not to be forced to wear a colostomy bag except in the early morning when they ordinarily have their bowel movement.

I am very interested in the increased operability which is established in the clinics that see patients with cancer of the colon. I am confident that we are operating today upon a large number of people with cancer, rectal, sigmoidal and colon, which we would have denied surgery had we seen them a few years ago. We have two patients who are alive after Miles operations three years ago who had demonstrable metastasis in the liver at the time of the initial operation. Both of these patients are free of symptoms. I have, of course, no explanation to offer as to what progress has been manifested in their liver metastasis. I cannot agree with the Drs. Johns entirely in their statement as to the role which the sulfa drugs may be expected to play in intestinal surgery. They said they employed sulfasuxidine regularly, but they did not employ other sulfa drugs intra- or extraperitoneally after their resections. I have no way of knowing just what contribution chemo-therapy has made in the field of large bowel surgery, but it is my distinctive impression that our own results have been materially benefitted by sulfasuxidine pre-operatively and by using sulfa drug intra-peritoneally around the anastamosis and giving such patients sulfa drugs intravenously after surgery. When streptomycin has been made available to the profession generally, I believe that it will be a further adjunct in treatment to avoid peritoneal contamination.

I think the Drs. Johns have rightfully called attention to the importance of the selection of anesthesia in this group of patients. I know of no greater contribution to surgery generally than has been offered by the qualified anesthetists who understand the physiology of anesthesia and who assume full responsibility for the patients' sustenance during the pre- and post-anesthesia stage. We have had a very limited experience with the continuous spinal anesthesia. Within recent years we have discontinued the routine employment of spinal anesthesia. Practically all of our patients are given cyclopropane with a high oxygen content.

A true evaluation of the patient's ability to stand massive surgery should, of course, take into consideration the degree of such a patient's anemia, his age, the location of the lesion, his degree of hypoproteinemia, his potential fluid loss and the experience and ability of the surgeon to resect the bowel with the least operative trauma. Fortunately all these factors have been emphasized over and over again in the literature covering this subject. The fact that there still exists differences in opinion as to the operative procedures indicated would emphasize the definite fact that the whole problem has not as yet been solved.

DR. R. L. PAYNE, Norfolk: I do not know when I have heard two finer papers than have been presented here this afternoon on this subject. I have heard this problem discussed before the American Surgical and the Southern Surgical Associations in the last two years; and I think Dr. Johns' paper on one side of the fence, so to speak, and Dr. Graham's paper on the other side have admirably covered about all we know in the conservative surgery of the colon. I congratulate the Drs. Johns on the very beautiful work they are doing, and yet sometimes I wonder if I could follow them in fee simple in their primary resections.

Dr. Graham asked me to discuss his paper. I think the trend of his paper has been largely the question of the elimination of colostomy and the fact that the primary resection that is now being done so ravenously, we might say, here and there is more or less a revival of a practice discarded a few years ago. When I first began my work, back in 1905 and 1906, we did Kraske's and Lockhart-Mummery operations, and I believe the fact that those operations failed was because we did not go high enough to get the lymphatics and the blood-vessel invasion. It is a question in my mind whether primary resections in some cases have failed and will fail, when time has answered the question, not only because they did not go high enough but, principally, because they did not go low enough. I do not fully subscribe to the idea that there is no extension of the lesion except upward, and that is not supported by the reports in the literature and in many clinics in the country. These operations permit the possibility of not enough removal of tissue high and not enough removal of tissue low. We have the lymphatics to remove; we have to remember we have the local involvement of the actual tumor growth itself; and particularly we must remember we have blood-vessel invasion in these growths. I like to feel when I am taking out a cancer anywhere, particularly of the rectosigmoid, that I can go as high as I like. I like to feel I do not have to pay attention to the blood supply of the proximal or distal portions of the colon as I would if I did an anastomosis. I like to feel that I can do for the patient the most radical surgery possible.

We have got to remember that many of these growths are very small. But even in small, localized lesions the metastases are frequently bigger than the lesions themselves.

I wonder if we should speak of these primary anastomoses as advances in surgery. We have all known how to do intestinal anastomoses for a long period of years and perform them skilfully without undue mortality. I wonder if we should speak of them as advances in surgery or rather as a means of securing ease and facility for the surgeon and permitting the patient to secure the sentimental end—namely, avoidance of colostomy. I wonder if we should defend these operations, in contrast to the combined abdominal-perineal, when

XUM

we know that so many patients have not the right to choose between a colostomy and the dangers of primary resection without colostomy. I remember a quotation that goes something like this: "On the plains of hesitation millions stop to rest, and, resting, they die." I am wondering if many patients do not die because of hesitating to choose colostomy.

I want to say one word about the preservation of the rectal sphincter. I want to condemn that. I do not believe we go wide enough in trying to preserve the rectal sphincter. I do not believe we go high enough. I do not believe the results will justify it. Time alone will tell, and even though we get statistics covering a five- or six- or seven-year period it will still be difficult to evaluate those statistics because of the different types of cases and their operability. I do not believe that will be determined until study has gone on over a long period of time.

A good many men have tried this operation of preservation of the rectal sphincter and have abandoned it. Dr. Lahey has abandoned it and has stated forcefully in print his reasons. A great many others have abandoned it. Dr. Lahey, in a discussion before the Southern Surgical Association last December, said he thought trying to preserve the rectal sphincter and remove a cancer and save the patient was an attempt to do two things at one time and that in trying to do two things at one time we are trying to get something for nothing. I wonder if I might not twist that a little and say the patient is getting nothing for something. He is impressed with the fact that his sphincter is being saved, but he may lose his life. I do not want to be dogmatic; I know it is in bad taste; but I do want to say that I think primary anastomosis low down, with preservation of the sphincter, definitely compromises the extent of the removal of distantly involved tissues; and it does seem as if, in the long run, the patient is definitely getting nothing for something.

DR. FRANK S. JOHNS, closing the discussion: The discussion of these two papers together has created some misunderstanding. To clarify and summarize, I may re-state our conclusions based on our results during the past few years. We prefer doing a resection of the colon with immediate anastomosis if this procedure can be carried out with safety. We have made no effort to do this operation in cases unsuitable for such a procedure.

Dr. Payne has brought up the question of preserving the sphincter ani. We have had no experience with that procedure, and therefore we do not feel qualified to condemn it. We report our last 40 cases of cancer of the colon in which we believed the growth could be removed either by exteriorization or by resection with immediate anastomosis. For all of them we have used the immediate anastomosis procedure, without an operative death. I repeat, there has been no exteriorization procedure in this series.

Of course, it is probable that we shall run into cases unsuitable for the one-stage operation; if so, we shall do the operation which is best suited to the removal of the growth and to the safety of the patient. It is our contention that with the proper pre-operative preparation of the patient, and with sound intestinal surgery, the great majority of cases of cancer of the colon should be done in one stage.

Please do not confuse this opinion with that as to the proper procedure for cases of cancer of the recto-sigmoid or for cases in which the lesion is too low in the pelvis for an end-to-end anastomosis to be made.

Radio Program Wins University Award.

The American Medical Association—National Broadcasting Company series of dramatized broadcasts on the progress of medicine in the United States during the 100 years of the A. M. A.'s existence, entitled "Doctors—Then and Now," received first award in the "Civic and Service Organizations" class at the 17th Annual Session of Ohio State University's American Exhibition of Educational Radio Programs, May 2-5 in Columbus.

The citation read: "For presenting to the listening audience in a dramatic and most effective manner the ideals and principles which motivate the members of the medical profession in their struggle against human illness."

The programs are planned by the Bureau of Health Education of the American Medical Association. This is the second award which the bureau has received since the establishment of awards by Ohio State University 11 years ago. In 1938 the same award was given for the program "To America's Schools."

TREATMENT OF DYSMENORRHEA*

HENRY C. SPALDING, M.D.,
Richmond, Virginia.

Dysmenorrhea is defined as painful menstruation. Two types are recognized—primary and secondary. Primary dysmenorrhea is painful menstruation, not associated with demonstrable pathologic disorder, while secondary dysmenorrhea is associated with organic gynecological diseases. It is of the first type that I have been told to talk.

Before dismissing secondary dysmenorrhea, however, I think it would be well to say that the alleviation of symptoms is dependent on correction of the concomitant gynecological pathology, which is almost always surgical in nature.

The term primary dysmenorrhea is synonymous with essential, idiopathic, intrinsic, or functional dysmenorrhea. The etiology is unknown. The preponderance of modern opinion, however, is that the symptoms arise largely by reason of motor dysfunction. Just this month at the annual meeting of the South Atlantic Association of Obstetricians and Gynecologists, which was held at Savannah, Dr. Richard Torpin, of the University of Georgia, had a paper presented by one of his associates showing intrauterine pressure curves, kymographically. These were taken, of course, by putting a small bag (hydrostatic bag) in the uterine cavity. It was shown that pressures on this bag during menses frequently exceeded the pressure exerted during labor. Also they showed that curves in patients with dysmenorrhea differed from the non-dysmenorrheic, in amplitude and frequency of contractions. In January of 1947, the *American Journal of Obstetrics and Gynecology* carried an article entitled "The Psychosomatic Aspect of Dysmenorrhea", which brings rather forcibly to our attention the psychic elements involved. Tremendous benefits can be given patients from time spent by someone like me who woefully lacks even a rudimentary knowledge of psychiatry.

Primary dysmenorrhea associated with cervical stenosis is remedied by cervical dilation. When retroversion or retroflexion is thought to be the cause, replacement of the uterus with insertion of a pessary is often efficaceous. The above procedures are possible in almost 100% of the cases in one's office, and are successful with many of those. Uterine hypoplasia, with or without anteflexion, is materially helped by pregnancy. In those patients who still have pain, and in those patients in whom I have found nothing in the pelvis, it is my practice to endeavor to improve their general health. This is done through the administration of thyroid to those with low BMR's, iron for the anemias, and vitamins when thought indicated, and then to employ one of the three following preparations: (1) Nethacetin in 5 mg. tablets one every four hours for 24 to 48 hours before the onset of the menses, and then to continue this for one or two days after the beginning of the menses. This, of course, is a sympathomimetic drug and is very similar in action to atropine. It does not, however, have some of the undesirable other effects of atropine, but atropine itself, in 1/100 gr. doses, is sometimes helpful. (2) Progesterone: to employ one of the hormone preparations, I usually use in the form of "Pranone" made by Schering in 5 or 10 mg. tablets two or three times a day, two days before menses and one day post-menstrually. (3) Prostigmin 15 mg. tablets three times a day for one or two days before menses and one day post-menstrually, has been found helpful.

When, by trial and error, one of the above preparations which does the most good is found, if relief then be not complete, there is no objection whatever to the employment of certain analgesic drugs—those coal tar derivatives, aspirin, phenacetin, etc., and combinations of these. It is my belief, however, that one cannot be too emphatic in denouncing the use of opiates and the greatest caution possible is advised in the use of derivatives of barbituric acid, because of their habit-forming potentialities.

When all medication fails and dysmenorrhea is truly invalidizing there is still one more thing to consider. I refer to pre-sacral sympathectomy. My own limited experience promises cure in 50% of the patients. This requires laparotomy and is not easy except when the anterior surface of the sacrum can be freely exposed. The literature carries much controversy about the worthwhileness of this procedure and I suggest an open mind be kept until a fair appraisal can be made.

*Read at the Symposium on Therapy, February 18-19, 1947, Medical College of Virginia, Richmond, Virginia.

XUM

MEDICAL SOCIETY OF VIRGINIA

PUBLIC RELATIONS

Reactions to "Test Your Medical IQ"

(First column, released for publication Thursday, May 1)

By Public Relations Office, Medical Society of Virginia
1200 E. Clay Street, Richmond 19, Va.

(Each question answered correctly counts 10 points. Score yourself by the answers at the bottom after you have completed the quiz. 70-80 is average, 80-90 good, 90-100 excellent.)

1. **The term "trauma" means (SORE—WOUND—SWELLING).**
2. **More than one-half of the hospital beds in the United States are occupied by mental patients. (TRUE—FALSE).**
3. **Skin on the soles of your feet is approximately (¼—½—⅛) of an inch thick.**
4. **The leading cause of death among school children is (PNEUMONIA—RHEUMATIC FEVER—ACCIDENTS).**
5. **Is it possible to carry the typhoid germ without the "Carrier" himself having typhoid? (YES—NO.)**
6. **Napoleon was considered one of the greatest military geniuses of all time, yet he was defeated by what disease? (LEPROSY—TYPHUS FEVER—TUBERCULOSIS.)**
7. **"The National Health Act of 1947" introduced to the 80th Congress on February 10, 1947, by Senator Robert Taft (R-Ohio) proposed the creation of a new executive branch of the Government. (TRUE—FALSE.)**
8. **Immunity to what disease is determined by the Schick Test?_____**
9. **Refrigeration anesthesia is often used to gain time until a patient is strong enough for an operation. (TRUE—FALSE.)**
10. **Until a doctor can be contacted, a child with convulsions should be (MADE TO SIT UP—PLACED IN A BATH OF WARM WATER—PUT IN AN ICE PACK).**

ANSWERS: (1) Trauma means wound or injury. (2) True. More than 600,000 are now in mental hospitals, and every year a quarter of a million new patients are added. (3) ¼. (4) Accidents. Six thousand five hundred school children are killed annually through accidents. (5) Yes. A "Carrier" is particularly dangerous around food, because the food may become infected. All food handlers should have thorough examinations. (6) Typhus Fever. The Grand Army set out for Russia 400,000 strong; and six months later the remnants—a scant 3,000—dismally returned. (7) True. The Agency proposed is: "The National Health Agency", to embrace all activities of the Federal Government relative to health. (8) Diphtheria. (9) True. Refrigeration anesthesia preserves injured tissue and restrains infection until a patient can gain the necessary strength for an operation. (10) Placed in a bath of warm water.

The people of Virginia are now being furnished regularly health and medical information. Forty-eight newspapers in the State are carrying the weekly quiz column, "Test Your Medical IQ", prepared by the Public Relations Department, Medical Society of Virginia.

Before the quiz column was started, each of the 112 weeklies, 23 evening dailies and six magazine

publications were written individually. It was pointed out that the purpose of the quiz was to dispense accurate, authoritative health and medical information which would be both interesting and helpful.

A wide range of reactions came in the 57 replies to the initial and follow-up letters, with 48 of the papers accepting the weekly quiz column for publication. From *The Alexandria Gazette* came the offer, "We are ready to do anything to help you in your program of furnishing the general public with medical information . . ." *The Bee* of Danville expressed the opinion that, "The feature is very timely in view of the general looseness of general knowledge about bodily ills." *The Norfolk Ledger-Dispatch* thinks, "It might serve a useful purpose, and therefore am glad to inform you that we will use it." From *The Progress-Index*, Petersburg, came the thought: "Your health column is most interesting and, we believe, may fill a definite need." *The Victoria Dispatch* said, "It is a good idea to educate the public regarding health and medical care."

Some papers expressed the belief that the column should be classified as advertising, and they did not believe that they should regard it as a public service feature. Almost without exception, the paper shortage was referred to. Ten papers wrote that this was the only reason for refusing the column.

While press advisers say that 48 acceptances is a high percentage, the Public Relations Department is of the opinion that more newspapers would carry the "Test Your Medical IQ" if local contacts were made. Since most weekly newspapers are run by a staff of a limited number, they perhaps are not prepared to give the necessary time to correspondence on matters of this nature. While only 18 papers replied to the original personal letter, 30 sent in postal cards which were attached to the follow-up letter. This is indicative that even more papers might accept this service if they were contacted by a local doctor.

"Test Your Medical IQ" began the first week in May on a 13-week trial period through July 24. Before this quarter of the year is out, editors of the papers will be asked to evaluate the column, and these evaluations combined with the reactions of members of the medical profession could serve a useful purpose in determining future use we might make of such a column and the press in this connection.

Front page space given to this column in some newspapers is indicative of the regard held for the quiz column by some editors.

Radio Program Successfully Launched.

The initial radio program of the Medical Society of Virginia is well under way, with twelve key radio stations in Virginia broadcasting "Tell Me Doctor" daily, Monday through Friday.

Gratifying comments have already begun to come from the doctors and lay public on the venture. The following letter was received by the Public Relations Department on April 29:

April 28, 1947.

DEAR MR. JOHNSON:

As a member of the Medical Society of Virginia, I have received your circular letter of April tenth with reference to your proposed use of the advantages of radio to carry on a program which will reach apparently nearly all of the people in Virginia.

I consider this one of the most progressive steps which our Society has taken, and I would like to congratulate you and Doctor Roper upon taking this step.

I am particularly interested in this as I believe that I sent out many, many years ago from the Naval Radio Center then at Arlington the first public health national broadcast which had been sent out.

With kind personal regards,

Sincerely yours,
HUGH S. CUMMING,
Surgeon General, U. S. Public Health Service (Retired)

Several letters have come to the Public Relations Department both from doctors and from radio stations inquiring why "Tell Me Doctor" was not scheduled on a specific station. After some conference with radio engineers, the best advice which this office was able to secure prior to the beginning of the series was that Virginia could be rather well covered by twelve radio stations, and possibly by eleven. While it would have been ideal to schedule "Tell Me Doctor" on every radio station in Virginia, the expense of such an undertaking made it prohibitive. There are more than 25 radio stations in Virginia at the present time, with several more planning to open in the near future, we are advised. To schedule "Tell Me Doctor" on all of the local radio stations would have doubled the cost of the present series, which may cost approximately $2,000, despite the fact that time for the broadcasts is being donated by the stations. If the time were purchased,

XUM

it would cost more than $7,000 for that alone, on the twelve stations.

Considering the cost and coverage of the stations selected, it was deemed expedient to use only those stations necessary to cover the State.

A number of doctors have stated that they did not receive their office cards for the radio program. This possibility was anticipated by this office, and a supply has been sent to the secretary of each Medical Society to serve those whom the cards did not reach.

The excellent coverage given the launching of "Tell Me Doctor" by newspapers over the State was indeed gratifying. One doctor is paying for a weekly advertisement in his newspaper giving notice of the program, and has also requested his Division Superintendent of Schools to give publicity to this program through the schools. Several doctors have written their local stations in appreciation of their cooperation in broadcasting the program. Expressions of appreciation by members of the Medical Society of Virginia are conducive to a good relationship between the radio or press, and the medical profession.

Already we are convinced that a great number of doctors have not seen the reception room announcement cards announcing the "Tell Me Doctor" program. Even though not all of our literature is sent out first class, materials going from this office are labelled with a return address.

Voluntary Pre-Payment Medical Care and Hospitalization Plans Conference.

Many requests have come to us to assist in the promotion of the voluntary pre-payment medical care and hospitalization plans. Word has gone out from the American Medical Association that emphasis should be given to these immediately.

Our feeling was that whatever we did in this regard should be guided by the advice of those familiar with such plans in operation in Virginia.

For this purpose, a conference was called at the John Marshall Hotel in Richmond, Monday, May 5 from 10:30 a. m. to 4:00 o'clock, to which representatives of voluntary non-profit medical care and hospitalization plans were invited. Dr. Alex F. Robertson of Staunton, chairman of the Board of the Virginia Medical Service Association, presided. The following were present:

Mr. Leonard O. Key, Roanoke, Mr. M. Haskins Coleman, Richmond, Dr. W. L. Powell, Roanoke, Mr. Gibson Howell, Richmond; Dr. W. R. Pretlow, Warrenton; Dr. Vincent Archer, Charlottesville; Dr. Frank A. Farmer, Roanoke; Dr. Charles H. Peterson, Roanoke; Mr. William R. Lowe, Norfolk; Mr. Henry S. Johnson, Richmond.

It is hoped that an approach can be built around the suggestions coming out of the Conference, and others that come to us.

Dr. Mettauer Rides Again!

While the little black carriage drawn by two black bay horses was not conveying Dr. John Peter Mettauer around Virginia the first week in May, he got quite a ride on the airwaves and on newsprint.

The first lap of the journey was covered by a feature story furnished the Associated Press by the Public Relations Department. The two-column story and picture of Dr. Mettauer received statewide coverage. The following Thursday, weekly newspapers over Virginia carried a story released through the Virginia Press Association.

Station WMBG, the NBC radio station in Richmond, broadcast a local program Thursday evening, May 8 from 10:45 to 11:00. A dramatic cast from WMBG gave the first part of the program, which was a blank verse summary of Dr. Mettauer's life. The latter part of the program was devoted to a talk by Dr. M. Pierce Rucker on the significance of the metallic suture work Dr. Mettauer performed, and a talk by Dr. Wyndham B. Blanton on the operations he performed.

The nationwide thirty-minute broadcast came Saturday afternoon, May 10, on the "Doctors—Then and Now" program from NBC from 3:00 to 3:30 Eastern Standard Time. The dramatic script referred to the influence on Dr. Mettauer's life of his father, General Lafayette, and his professor, Dr. Wistar, at the University of Pennsylvania.

The last three minutes, approximately, of the program were covered by Dr. Wingate M. Johnson, editor of the *North Carolina Medical Journal*. His general theme was a report of today's health and medical care in Virginia and North Carolina.

The editorial in this issue of the *Virginia Medical Monthly* was probably the outgrowth of a revived interest in the work of Dr. John Peter Mettauer, a great Virginian.

XUM

THE FORUM

Counties and Cities of Virginia With Names and Addresses of Coroners.

Dr. H. S. Breyfogle, who early this year assumed the duties of first Chief Medical Examiner of Virginia, in cooperation with the Commission on Post-Mortem Examinations, announces the appointment of the following doctors as coroners in the various counties and cities of Virginia:

NAME OF COUNTY AND NAME AND ADDRESS OF CORONER

ACCOMAC
Dr. J. L. DeCormis, Accomac.
Dr. R. J. White, Keller.

ALBEMARLE
Dr. E. D. Davis, Crozet.
Dr. Percy Harris, Scottsville.

ALLEGHANY
Dr. W. J. Ellis, Covington.
Dr. L. A. Houff, Clifton Forge.

AMELIA
Dr. J. T. O'Neal, Amelia.

AMHERST
Dr. S. R. Arnold, Amherst.
Dr. Lyddane Miller, Amherst.

APPOMATTOX
Dr. C. G. O'Brien, Appomattox.

ARLINGTON
Dr. W. C. Welburn, Arlington.

AUGUSTA
No coroner.

BATH
Dr. I. T. Hornbarger, Hot Springs.

BEDFORD
Dr. E. L. Johnson, Bedford.
Dr. W. V. Rucker, Bedford.

BLAND
No coroner.

BOTETOURT
No coroner.

BRUNSWICK
Dr. T. H. Anderson, Lawrenceville.
Dr. F. N. Mallory, Lawrenceville.
Dr. T. H. Valentine, Lawrenceville.

BUCHANAN
Dr. J. S. Richardson, Grundy.

BUCKINGHAM
Dr. Garland Dyches, Dillwyn.
Dr. W. A. Pennington, Buckingham.

CAMPBELL
Dr. R. H. Cross, Concord Depot.
Dr. J. P. Kent, Altavista.
Dr. W. O. Tune, Brookneal.

CAROLINE
Dr. J. G. Broaddus, Bowling Green.

NAME OF COUNTY AND NAME AND ADDRESS OF CORONER

CARROLL
Dr. J. G. Cox, Hillsville.
Dr. W. A. Porter, Hillsville.

CHARLES CITY
Dr. J. R. Parker, Providence Forge.

CHARLOTTE
Dr. H. C. Chalmers, Brookneal.
Dr. Thomas Watkins, Drakes Branch.

CHESTERFIELD*
Dr. W. H. Copley, Richmond.
Dr. P. L. Hill, Colonial Heights (Petersburg district).
Dr. J. F. Parkinson, Chester.

CLARKE
Dr. Frank Tappan, Berryville.

CRAIG
Dr. W. F. Mitchell, New Castle.

CULPEPER
Dr. J. L. Stringfellow, Culpeper.

CUMBERLAND
Dr. E. B. Nuckols, Cumberland.
Dr. N. P. Snead, Cartersville.

DICKENSON
Dr. R. L. Phipps, Clintwood.
Dr. T. C. Sutherland, Haysi.

DINWIDDIE
Dr. W. J. Mayes, Church Road.

ELIZABETH CITY
Dr. P. J. Parker, Hampton.

ESSEX
Dr. J. W. Chinn, Tappahannock.
Dr. J. M. Gouldin, Tappahannock.

FAIRFAX
Dr. Nelson Podolnick, East Falls Church.

FAUQUIER
Dr. G. H. Davis, Warrenton.

FLOYD
Dr. F. C. Bedsaul, Floyd.

FLUVANNA
Dr. A. C. Whitley, Palmyra.
Dr. J. H. Yeatman, Fork Union.

FRANKLIN
Dr. E. C. Jamison, Rocky Mount.
Dr. F. B. Wolfe, Rocky Mount.

FREDERICK
Dr. T. A. Gibson, Winchester.
Dr. J. C. Hortenstine, Winchester.
Dr. E. W. Lacy, Winchester.
Dr. George Smith, Winchester.

GILES
No coroner.

*For parts of Chesterfield County not within these three districts coroners for Petersburg, Hopewell, Richmond, Charles City, Dinwiddie, Amelia or Powhatan should be notified, whichever is nearest to the place of death.

NAME OF COUNTY AND NAME AND ADDRESS OF CORONER
GLOUCESTER
Dr. H. A. Tabb, Gloucester.
Dr. J. W. Smith, Hayes Store.
GOOCHLAND
Dr. W. S. Lloyd, Goochland.
GRAYSON
Dr. J. C. Moxley, Independence.
GREENE
Dr. M. D. Foster, Stanardsville.
GREENSVILLE
Dr. M. G. Baynard, Emporia.
Dr. G. M. Naff, Emporia.
HALIFAX
Dr. C. B. White, Halifax.
HANOVER
Dr. A. B. Gravatt, Ellerson.
Dr. A. E. Murray, Beaverdam.
Dr. Judson Vaughan, Ashland.
HENRICO
Dr. M. B. Lamberth, Richmond.
Dr. J. C. LeFon, Richmond.
HENRY
Dr. L. A. Faudree, Bassett.
Dr. D. H. Mason, Ridgeway.
HIGHLAND
Dr. C. B. Fox, Monterey.
Dr. B. T. Swecker, Blue Grass.
ISLE OF WIGHT
Dr. Rea Parker, Smithfield.
JAMES CITY
Dr. A. M. Sneed, Toano.
KING GEORGE
Dr. R. N. Harris, Port Royal.
KING AND QUEEN
Dr. R. D. Bates, Newtown.
KING WILLIAM
Dr. W. H. Hosfield, West Point.
Dr. A. W. Lewis, Aylett.
LANCASTER
Dr. A. B. Gravatt, Jr., Kilmarnock.
LEE
Dr. T. S. Ely, Jonesville.
Dr. G. C. Sumpter, Rose Hill.
LOUDOUN
Dr. W. P. Frazer, Hamilton.
LOUISA
Dr. H. W. Judd, Mineral.
LUNENBURG
Dr. H. B. Showalter, Kenbridge.
MADISON
Dr. A. E. Powell, Madison.
MATHEWS
Dr. R. B. Bowles, Mathews.
Dr. J. R. Gill, Mathews.
MECKLENBURG
Dr. H. H. Braxton, Chase City.
Dr. W. J. Ozlin, South Hill.
MIDDLESEX
Dr. H. F. Hoskins, Saluda.
MONTGOMERY
Dr. C. F. Manges, Blacksburg.
Dr. A. M. Showalter, Christiansburg.
NANSEMOND
Dr. G. R. Joyner, Suffolk.
NELSON
Dr. Estes Kidd, Lovingston.
NEW KENT
Dr. J. R. Parker, Providence Forge.
NORFOLK
Dr. L. C. Ferebee, South Norfolk.
NORTHAMPTON
Dr. J. E. Gladstone, Exmore.
Dr. J. G. Goode, Cape Charles.
NORTHUMBERLAND
Dr. M. M. Neale, Heathsville.
NOTTOWAY
Dr. J. M. Hurt, Blackstone.
ORANGE
Dr. J. N. Clore, Orange.
Dr. H. C. McCoy, Gordonsville.
PAGE
Dr. G. H. Long, Luray.
PATRICK
Dr. A. M. Gates, Ararat.
Dr. B. A. Hopkins, Stuart.
PITTSYLVANIA
Dr. H. H. Hammer, Chatham.
POWHATAN
Dr. W. S. Lloyd, Goochland.
PRINCE EDWARD
Dr. W. E. Smith, Farmville.
PRINCE GEORGE
Dr. W. C. Webb, Disputanta.
PRINCESS ANNE
Dr. H. F. Dormire, Virginia Beach.
PRINCE WILLIAM
Dr. E. H. Marstellar, Manassas.
PULASKI
No coroner.
RAPPAHANNOCK
Dr. J. P. Snead, Sperryville.
RICHMOND
Dr. J. H. Hare, Warsaw.
ROANOKE
Dr. John Hurt, Vinton.
Dr. A. J. Russo, Salem.
Dr. Russell Smiley, Salem.
ROCKBRIDGE
Dr. E. V. Brush, Lexington.
Dr. E. P. Tompkins, Lexington.

NAME OF COUNTY AND NAME AND ADDRESS OF CORONER

ROCKINGHAM
Dr. F. L. Byers, Harrisonburg.
RUSSELL
Dr. W. C. Elliott, Lebanon.
SCOTT
Dr. W. L. Griggs, Jr., Gate City.
SHENANDOAH
Dr. H. W. Miller, Woodstock.
SMYTH
Dr. D. C. Boatwright, Marion.
SOUTHAMPTON
Dr. J. J. Grizzard, Branchville.
Dr. T. A. Morgan, Franklin.
SPOTSYLVANIA
Dr. J. E. Cole, Fredericksburg.
STAFFORD
Dr. L. F. Lee, Fredericksburg.
SURRY
Dr. B. H. Knight, Surry.
SUSSEX
Dr. R. B. McEwen, Wakefield.
Dr. M. Rosenburg, Waverly.
TAZEWELL
Dr. Rufus Brittain, Tazewell.
Dr. James Peery, Richlands.
Dr. H. A. Porter, Boissevain.
WARREN
Dr. D. M. Kipps, Front Royal.
WARWICK
Dr. M. L. Horne, Hilton Village.
Dr. C. P. Jones, Hilton Village.
WASHINGTON
Dr. G. H. Wolfe, Abingdon.
Dr. J. A. Wolfe, Abingdon.
WESTMORELAND
Dr. E. T. Ames, Montross.
Dr. C. H. Griffith, Machodoc.
WISE
Dr. N. F. Hix, Wise.
WYTHE
Dr. E. M. Chitwood, Wytheville.
YORK
Dr. L. O. Powell, Seaford.

NAME OF CITIES AND NAME OF CORONER

ALEXANDRIA
Dr. J. A. Sims.
BRISTOL
Dr. Frederick Thackston.
BUENA VISTA
Dr. R. R. Eason.
CHARLOTTESVILLE
Dr. Gregory Magruder.
Dr. James B. Twyman.
CLIFTON FORGE
Dr. L. A. Houff.

NAME OF CITIES AND NAME OF CORONER

DANVILLE
Dr. H. A. Wiseman, Jr.
FREDERICKBURG
Dr. J. E. Cole.
HAMPTON
Dr. P. J. Parker.
HARRISONBURG
Dr. F. L. Byers.
HOPEWELL
Dr. A. T. Brickhouse.
LYNCHBURG
Dr. J. A. Wilkins.
MARTINSVILLE
No coroner.
NEWPORT NEWS
Dr. Thomas D. Walker.
NORFOLK
Dr. C. D. J. MacDonald.
PETERSBURG
Dr. Thomas D. Pope.
PORTSMOUTH
Dr. R. L. Corbell.
RADFORD
Dr. H. L. Dean.
Dr. T. L. Gemmill.
RICHMOND
Dr. K. J. Cherry.
Dr. M. Markowitz.
Dr. E. L. Shelton, Jr.

Coroners for the city of Richmond may be reached by calling the Medical College of Virginia, 7-1800 day or night.

ROANOKE
Dr. Charles M. Irvin.
SOUTH NORFOLK
Dr. L. C. Ferebee.
STAUNTON
Dr. R. P. Bell, Jr.
Dr. Charles F. Gaylord.
SUFFOLK
Dr. E. C. Joyner.
WILLIAMSBURG
Dr. J. M. Henderson.
WINCHESTER
Dr. T. A. Gibson.
Dr. J. C. Hortenstine.
Dr. E. W. Lacy.
Dr. George Smith.

PHYSICIANS OFFICIALLY DESIGNATED TO PERFORM AUTOPSIES

Dr. Frank Apperly, Department of Pathology, Medical College of Virginia, Richmond.
Dr. Regena Beck, Stuart Circle Hospital, Richmond.
Dr. M. B. Beecroft, Elizabeth Buxton Hospital, Newport News.

XUM

PHYSICIANS OFFICIALLY DESIGNATED TO PERFORM AUTOPSIES

Dr. James Cash, Department of Pathology, University of Virginia Hospital, University of Virginia School of Medicine, Charlottesville.
Dr. H. L. Dean, Coroner of the city of Radford, Gardner Building, Radford.
Dr. M. L. Dreyfuss, Chesapeake and Ohio Hospital, Clifton Forge.
Dr. L. C. Ferebee, Coroner of Norfolk County and the city of South Norfolk, 1220 Chesapeake Avenue, South Norfolk.
Dr. K. D. Graves, Medical Arts Building, Roanoke.
Dr. Charles Irvin, Coroner of the city of Roanoke, 31 Wellington Avenue, Roanoke.
Dr. L. S. Kau, Winchester Memorial Hospital, Winchester.
Dr. J. D. Kernodle, Alexandria Hospital, Alexandria.
Dr. Joseph Kriz, McGuire Hospital, Richmond.
Dr. C. D. J. MacDonald, Coroner of the city of Norfolk, Norfolk.
Dr. E. H. Marstellar, Coroner of Prince William County, Manassas.
Dr. T. J. Moran, Memorial Hospital, Danville.
Dr. L. J. Motyca, Norfolk General Hospital, Norfolk.
Dr. Francis Parker, Department of Pathology, University of Virginia Hospital, University of Virginia School of Medicine, Charlottesville.
Dr. James Peery, Coroner of Tazewell County, Mattie Williams Hospital, Richlands.
Dr. R. L. Phipps, Coroner of Dickenson County, Dickenson County Hospital, Clintwood.
Dr. Simon Russi, McGuire Hospital, Richmond.
Dr. J. H. Scherer, Grace Hospital, Richmond.
Dr. W. Edward Smith, Coroner of Prince Edward County, Farmville.
Dr. A. F. Strauss, DePaul Hospital, Norfolk.
Dr. W. J. Sturgis, Jr., Memorial Hospital, Nassawadox.
Dr. E. P. Tompkins, Coroner of Rockbridge County, Lexington.
Dr. James Wilkins, Coroner of the city of Lynchburg, Allied Arts Building, Lynchburg.
Dr. G. Hunter Wolfe, Coroner of Washington County, Abingdon.

An Appreciation of Dr. Moncure.

On May 2, 1947 at the regular monthly meeting of the Princess Anne County Medical Society, the following resolutions were presented:

First: Whereas our beloved friend, Dr. P. St. L. Moncure has attained the remarkable goal of fifty years' service in the Medical profession, during which time he has held many positions of eminence and importance throughout the State, we feel he has used marked skill, wisdom and discretion in the discharge of his duties.

Second: That his lofty ideals, his sincerity of purpose, his high ethical standards, his marked generosity, and his kindliness have endeared him to all who know him.

Third: That throughout this career, his interest and helpfulness to internes and young doctors has been outstanding, the nursing profession has had a staunch friend in him, and he has been influential in maintaining the high standards of the hospitals of Norfolk.

Fourth: That we extend to Dr. Moncure our hearty congratulations, that we express our sincere appreciation for his many contributions to the Medical profession, and we wish for him many more years of usefulness.

Fifth: That a copy of these resolutions be sent to Dr. Moncure, included in the minutes of the Society, and published in the VIRGINIA MEDICAL MONTHLY.

CORA Z. CORPENING, *President*
R. A. STATA, *Secretary*
Princess Anne Medical Society.

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

President—MRS. J. E. HAMNER, Petersburg
President-Elect—MRS. J. L. DECORMIS, Accomac
Recording Secretary—MRS. M. H. HARRIS, West Point
Corresponding Secretary,
MRS. MEADE EDMUNDS, Petersburg
Treasurer—MRS. REUBEN SIMMS, Richmond
Editorial Chairman—MRS. E. HOLLAND TROWER, Eastville

Mid-Tidewater Medical Society Auxiliary.

The Auxiliary to the Mid-Tidewater Medical Society met in Gloucester on April 23rd. There was a small but interested attendance. It was hoped to get more of the young wives interested and regain some of the older members which were lost during the war years.

The next meeting will be in Urbanna, at which time it is planned to have an interesting program on Cancer.

MRS. M. H. HARRIS,
President.

PUBLIC HEALTH

L. J. ROPER, M.D.,
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for April 1947, as compared with the same month in 1946, and for the period of January through April, 1947, compared with the same period in 1946, follows:

	April 1947	April 1946	Jan.-April 1947	Jan.-April 1946
Typhoid and Paratyphoid	4	5	22	24
Diarrhea and Dysentery	347	150	1,361	558
Measles	1,367	2,608	4,743	6,999
Scarlet Fever	120	406	658	1,513
Diphtheria	18	27	108	168
Poliomyelitis	0	0	12	6
Meningitis	13	25	47	116
Undulant Fever	7	3	16	13
Rocky Mountain Spotted Fever	0	2	1	2
Tularemia	0	3	26	26

BRUCELLOSIS (Undulant Fever)

A considerable increase in the prevalence of Brucellosis in Virginia occurred during 1946. There were 73 cases reported this year as compared to a 1941-1945 average of 31 infections and a previous high year of 50 cases in 1938. During the first four months of 1947 a reported incidence of 18 cases would indicate a continuing high prevalence. Brucellosis in Virginia has largely proven of cattle origin and, as Bang's disease in beef and dairy herds has increased materially during the past several years, greater incidence of infection in man is to be expected. The case fatality rate seldom exceeds 2 per cent, but Brucellosis is a serious and an important illness as duration, complications and economic loss are considered.

Human infection in Virginia is largely due to Brucella abortus contracted directly or indirectly from cattle infected with Bang's disease. It obviously follows that those using raw milk and unpasteurized dairy products are predisposed to infection. Similarly the disease becomes occupational with higher prevalence in farmers, veterinarians, meat handlers and others repeatedly exposed to contaminated animals and animal products. Potential dangers of human brucellosis also exist in the goat and hog industries through brucella melitensis and brucella suis infections, respectively.

In the prevention of brucellosis the adequate pasteurization of milk and of all other dairy products is of utmost importance. We are all aware of the effectiveness of this process in the prevention of other communicable diseases and pasteurization is equally necessitated in the destruction of brucella. The principal problem, however, remains one of control over the reservoirs of infection in cattle and other domestic animals. In this connection the active immunization of the young animal with subsidized condemnation of all positive adult reactors is recommended by some authorities. Quarantine of all imported cattle until certification of freedom from infection is available may also be an important control measure. Special measures must be practiced to safeguard those exposed by occupation to contact infection. The brucella may gain access to the human body through microscopic breaks in skin or mucous membrane.

The diagnosis of brucellosis is frequently difficult, showing a symptomatic picture common to other systemic infections. However, a careful history indicating use of unpasteurized dairy products or the occupation with possible contact may be important. An insidious onset, the febrile waves marked by severe headache with generalized body aches and pains, are suggestive of infection. The laboratory may be of considerable help in diagnosis. The positive blood culture now frequently found would be conclusive proof of infection. Similarly, agglutination tests during the second week or later of illness may be helpful. With a negative previous history of brucellosis an agglutination titer of 1:80 or more is considered significant.

Diagnostic aid is also offered by the opsonocytophagic test. In this the patient's blood is incubated with brucella organisms. Bacterial phagocytosis is then counted microscopically. A positive result is interpreted if most white cells show bacterial ingestion.

A simple test may also be used when agglutina-

XUM

tion tests have consistently proven negative. One-tenth cubic centimeter of a diluted brucella vaccine or protein is injected intradermally. A positive reaction indicates past or present infection.

The treatment of brucellosis remains on a controversial basis along specific modes of therapy. Treatment with vaccine, serum or the sulfonamides is considered of questionable value. Latterly intensive streptomycin therapy in the hands of scattered clinicians in the acute or sub-acute case has shown some promising results. Supportive and symptomatic treatment with confinement in bed during the febrile periods is always indicated.

BOOK ANNOUNCEMENTS

Health Insurance in the United States. By NATHAN SINAI, DR. P. H.; ODIN W. ANDERSON; and MELVIN L. DOLLAR, School of Public Health, University of Michigan. New York, The Commonwealth Fund. 1946. xvi-115 pages. Cloth. Price $1.50.

In the old days, the good old days of course, it used to be said that the two sure things in this world were death and taxes. Today change has become a third certainty. Of course, there has always been some change but heretofore it has progressed so slowly that no one was much disturbed in his life time. Now almost all aspects of our lives are undergoing such rapid changes that many of us are disturbed.

The first and most primitive reaction to change is to oppose it and in no field has the opposition been more bitter than in medicine. This is the more surprising as the doctors are a well-educated group, not only in medicine proper but also more or less in biology and sociology and should be able to see the situation from a broader point of view.

Nevertheless, it seems to be exceedingly difficult for most of us to grasp and understand change when we are right in it. We tend to become confused and irritated at the loss of our old and familiar standards. It is to help in our orientation that the New York Academy of Medicine and the Commonwealth Fund have brought out this series of little books of which this is the tenth.

The title of this booklet is somewhat misleading as it is not health insurance but insurance against unexpected or sudden sickness. It describes the various ways that have been tried to spread the cost of a devastating illness or accident over some previous months or years. This may conduce to the mental health of the patient when he recovers and finds that he is not hopelessly in debt, but no way has ever been found to insure health. There is not even any generally recognized standard of biological health. In fact, most patients are considered recovered when they can get along about as well as before (the ordinary social criterion of health).

The doctors have done little more than this because they have largely limited their efforts to what the patient was willing and able to pay for, and most patients have not realized the value of health. This is one of the subjects which we may expect will receive more attention in the good days ahead.

E. C. L. MILLER.

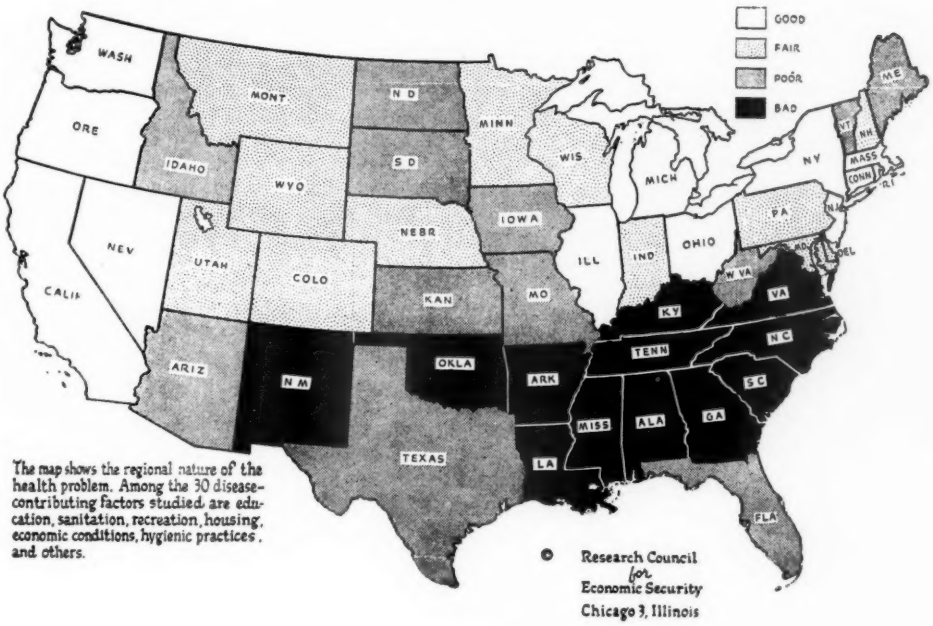
Practical Physiological Chemistry. By PHILIP B. HAWK, Ph.D., President, Food Research Laboratories, Inc., Long Island City, New York; BERNARD L. OSER, Ph.D., Director, Food Research Laboratories, Inc.; and WILLIAM H. SUMMERSON, Ph.D., Associate Professor of Biochemistry, Cornell University Medical College, New York City. 12th Edition. Philadelphia, The Blakiston Company, 1947. xiv-1323 pages. Illustrated. Cloth. Price $10.00.

Hawk, Oser and Summerson have prepared a completely revised and modern edition of Hawk's well-known practical text (now in its fortieth year) which was last revised by Hawk and Bergeim ten years ago. New material includes sections on the Warburg tissue-slice technique, sulfonamide drugs, antibiotics, microbiological vitamin assays, isotopes, photometry, electrophoresis and the polarograph. The quantitative analysis of blood and urine is covered thoroughly, and many other biochemical procedures are presented in detail. The text includes much recent material, and an attempt has been made to make the volume a complete text and manual. Recent advances are presented in the light of their clinical applications. This book is recommended to all who deal with biochemical procedures, their interpretation and significance.

LYNN D. F. ABBOTT, JR.

EDITORIALS

Our National Health Problem



The map shows the regional nature of the health problem. Among the 30 disease-contributing factors studied are education, sanitation, recreation, housing, economic conditions, hygienic practices, and others.

Population

ACCORDING to the 16th census of the United States, 35.3% of Virginia's population was urban, whereas 56.5% of the population of the whole United States lived in cities. Virginia was more rural than Wyoming. Only Alabama, Arkansas, Kentucky, Mississippi, New Mexico, North Carolina, North Dakota, South Carolina, South Dakota, Tennessee, Vermont and West Virginia had a higher percentage of country people. In Virginia 10.4% of her families had 3 or more children under 10 years of age. On this basis she ranked 9th in the large family column. Twenty-four and seven-tenths per cent of her population were non-white and only 5.8% of her population was over 65 years of age. In this respect she is surpassed by 34 states, among them Washington, Oregon and the Dakotas, comparatively new states in which one would not expect an aging population. In resort states like Florida and California one would expect to find a high percentage of old people and such proves to be the case. Of the 12 states with fewer persons over 65 years than Virginia, eight are in the South. Thus we see that Virginia has an essentially rural population with large families and a rather high percentage of negroes. When you take into consideration that the average income per capita is $125.00 less than the average for the nation, you get some idea of Virginia's problem.

XUM

Metallic Sutures

IN this day of clean surgery when the surgeon has adequate means of controlling the bacterial flora in wounds, it is difficult to realize why our predecessors thought so highly of metallic sutures. In the first half of the last century, before antisepsis and before anesthesia, wounds rarely healed by "first intention" and people spoke of "laudable pus", two terms that have disappeared from present day nomenclature. Injury to the bladder was a common complication of childbirth in those days and nothing could be done to cure these unfortunate women of their urinary incontinence. Even simple lacerations were left unrepaired because they did not heal when sutured. The common practice was to strap the woman's knees together for a week or more and hope for results.

Metallic sutures changed all this. In 1858 Marion Sims in his "Anniversary Discourse" before the New York Academy of Medicine spoke of the use of silver sutures as the great Surgical Achievement of the nineteenth century. He goes on to say, "In 1845 I conceived the idea of curing vesico-vaginal fistula, and entered upon the broad field of experiment with all the ardor and enthusiasm of a devotee. After nearly four years of fruitless labor, silver wire was fortunately substituted for silk as a suture and lo; a new era dawns upon surgery".—His first success was the 30th operation on that particular patient, truly a proper term for that poor colored girl. Sims attributes the founding of the Woman's Hospital of the State of New York to that happy occurrence. Others date the founding of modern gynecology to this event, calling Sims the Father of Gynecology.

It would seem worth while therefore to look into the history of metallic sutures. According to Sir James Y. Simpson (*Medical Times and Gazette,* June 5, 1858), Hippocrates and the ancients used gold and silver wire to hold together teeth in cases of fracture of the jaw. Celsus mentions gold and iron threads only to condemn them for use in animal tissues. The first time that metal was deliberately put into the tissues was in connection with attempts to cure inguinal hernia. Bernard Memis, Franco, Fallopius and Paré applied what they termed the "golden stitch" or "golden tie" to the neck of the hernia sac. Aveling (*Medical Times and Gazette,* January 22, 1859) attributes the first use of metallic sutures to Fabricius ab Aquapendente. "After describing the ligature of Fallapius which was of thread, and like the one which we, until lately, have been using, and that of Guido, which was made of metal, and hooked the two lips of a wound together; he says he provides himself with many flexible needles of iron or of brass, made soft, except at the point, over burning coals. These he passes through the lips of the wound, and then turns back the extremities, the right to the left and the left to the right, fitting them over the wound either straightly and plainly, or by making a knot." Fabricius gives the following reasons for preferring such sutures: 1. Iron does not eat into the flesh. 2. It does not ulcerate out. 3. It does not stretch and break. 4. It is not rotted by the discharge.

In the 18th century Purmann of Breslau used silver to advantage in wounds of the tongue, and in 1746 Mihles speaks of using silver and gold threads in the repair of hare-lip, but Dieffenbach is credited with being the first modern surgeon to use metallic sutures. In a paper on Staphyorrhaphy, published in 1826, he reported several cases in which he used lead thread to close the defect in the palate. He spoke of the advantage of twisting the wire, over having to tie a knot deep in the oral cavity. Gosset in London used gilded silver wire in a successful vesico-vaginal fistula opera-

tion in 1833, but it was in America that the subject of metallic sutures received the greatest attention.

In 1832 Dr. J. P. Mettauer used lead sutures in the successful repair of an old laceration of the vagina and rectum. He had previously (1817) used lead thread in the repair of cleft palate. In his paper "On Staphylorrhaphy" in 1837 he gives Dieffenbach the credit for introducing lead sutures. It seems remarkable that he should have learned of Dieffenbach's work so quickly. The explanation is that the Lancet for 1826 gave a detailed account of Dieffenbach's operation describing the size of the lead wire and stating that it should be made of pure lead. Mettauer employed the lead suture in 1838 for the successful repair of vesico-vaginal fistula. In 1829 Levert of Mobile, Alabama, reported a series of experiments on the reactions of various ligatures in animal tissues. He tied the carotid and the femoral arteries of a dog with lead, silver, gold and platinum wire and also with silk. The metal ligatures became encysted without causing inflammation, whereas the silk was invariably the center of small pockets of pus. He stated that Physick had suggested lead because of the well-known fact that lead bullets caused no inflammation in the tissues even after many years, but so far as Levert knew such ligatures had never been tried. His work except for notice by Marion Sims and Bozeman has escaped recognition.

Dieffenbach who is looked on as the author of metallic sutures in Europe did not recognize their importance and failed in a field where their use in America attained such remarkable success. He said of vesico-vaginal fistula (1836), "I have operated on a woman eighteen times and discharged her unrelieved. I have gathered together large rooms full of these unhappy women from all parts of the country, and I have exhausted all resources and have cured but few." Mettauer recognized their value and used them not only in staphylorrhaphy but with equal success in perineorraphies and vesico-vaginal fistula operations. Sims recognized their value and used them in all fields of surgery and talked about them incessantly and even bombastically (Editorial New England J. Med. 233:631. 1945).

When antisepsis and later asepsis began to be practiced, the choice of suture material became relatively less important. Wounds healed with any kind of clean sutures. Now the surgeon has as many kinds of suture material from which to choose as he has kinds of anesthesia. Among the non-absorbable sutures may be mentioned silk, linen, cotton, nylon, plastigut, fibreglas, horse hair, kangaroo tendon, fascia, silk worm gut, silver and stainless steel. The lowly lead has disappeared from the list.

In 1932 Babcock introduced alloy steel wire for sutures and ligatures because of its non-irritating and ease-of-manipulation qualities. It can be used in any field of surgery and is especially useful where there is likely to be infection. Judging from the recent literature stainless steel is gaining wide popularity. It is especially favored by those surgeons who recommend early ambulation.

Interestingly enough modern investigations have confirmed Levert's work of 1829 and the earlier observations of Fabricius. Tissue reaction as seen under the microscope, varies with the kind of suture material. It is greatest with catgut, not so great with silk, much less with cotton and practically none with metals.

XUM

SOCIETIES

The Augusta County Medical Association

Held its regular quarterly meeting in Waynesboro on May 7th, under the presidency of Dr. G. Edmund Stone. The scientific program was as follows: Pernicious Anemia by Dr. Byrd S. Leavell, University, and Sympathectomy in Hypertension and Peripheral Vascular Disorders by Dr. Everett I. Evans, Richmond. Mr. Harry Northam, executive secretary of the Association of American Physicians and Surgeons, gave a report on the position of medicine in this world. Mr. Henry S. Johnson, director of public relations of the Medical Society of Virginia, discussed the relation of the physician to his patients.

Dr. Boyd H. Payne is secretary of this association.

Loudoun County Medical Society.

Officers of this Society are Dr. J. T. Jackson, Leesburg, who succeeded Dr. J. A. Gibson (deceased) as President; and Dr. A. C. Echols, Purcellville, secretary-treasurer.

Lynchburg Academy of Medicine.

The May meeting of the Academy was held at Lynchburg General Hospital on the 5th, at which time Dr. H. D. Hoskins spoke on "Indications for Broncho-Esophagology" and Mr. Francis Libby on "The Blue Cross and the Blue Seal Program". Dr. Joseph Edwin Warren was admitted to active membership.

Dr. F. Read Hopkins is president and Dr. Robert H. Cox secretary of the Academy.

Roanoke Academy of Medicine.

At the May meeting, held on the 7th, the following scientific program was presented: RH Factor by Dr. McLemore Birdsong, University of Virginia; and Diaphragmatic Hernia by Dr. Porter P. Vinson, Richmond.

The Smyth County Medical Society

Was reactivated on February 12, 1947, at a meeting at the Hotel Lincoln in Marion with fourteen members of twenty-six present. Dr. T. K. McKee of Saltville was elected president, Dr. J. R. Blalock of Marion vice-president and Dr. R. C. Potter, also of Marion, secretary-treasurer. There have been two subsequent meetings during the following months. Dr. Harry M. Hayter of Abingdon presented two interesting surgical cases of foreign bodies, one in the stomach and one in the descending colon, at the last meeting.

The May meeting was combined with the Southwestern Virginia Medical Society which met in Marion on May 1. Future meetings will be held monthly with programs by guest speakers or members of the Society.

Virginia Peninsula Academy of Medicine.

Prior to the meeting on April 21st, a cocktail party at the Hampton Country Club was given by Dr. Louis Richman and Dr. William A. Read, both of Newport News. A steak dinner was then served at the Veterans Hospital in Kecoughtan. At the scientific session Dr. Benjamin Baker, Baltimore, conducted a clinicopathological conference on three cases selected from the hospital records. There was an attendance of ninety-four, and among the guests was Dr. Cesar Velez, Director of Public Assistance, Guayaquil, Ecuador, South America, who is studying public health work in this country.

Dr. Robert H. Wright, Phoebus, is president, and Dr. Chester D. Bradley, Newport News, secretary-treasurer.

The Williamsburg-James City County Medical Society

Held their May meeting on Friday the 9th. Mr. Henry S. Johnson, Director of Public Relations and Medical Service of the State Society, attended and, following a brief talk, led a lively and profitable discussion. Proof that it was both interesting and stimulating was shown by the fact that the meeting ran a good hour over the usual adjournment time.

All regular members except two, and one dentist, were present at the meeting. Two doctors were elected to membership—Dr. Mark Williams who is associated with Dr. A. M. Sneed at Toano, and Dr. Raphael Mora, recently of Marlboro, N. J., who recently joined the staff of Eastern State Hospital in Williamsburg.

Plans were initiated for an outdoor picnic meeting in July.

Officers of this Society are Dr. J. R. Parker of Providence Forge president, and Dr. E. Beamer Maxwell of Williamsburg secretary.

Arlington County Medical Society.

At the meeting of this Society on April 17th, Dr. J. Ross Veal, Washington, D. C., spoke on "Peripheral Vascular Disease", and a case history was given by Dr. Anthony DiSario. At the May meeting on the 15th, Dr. Roy G. Klepser, also of Washington, gave a talk on "Bronchogenic Carcinoma".

Dr. C. P. Cake is president of this Society and Dr. Leo Solet, secretary-treasurer.

NEWS

Centennial Meeting, Medical Society of Virginia.

Plans are progressing well for the Centennial meeting of the Society to be held in Roanoke, October 13-15, under the presidency of Dr. W. L. Powell of that city. Among features planned is a birthday party on the first evening. The usual banquet, followed by dancing will be on the second evening, and special society luncheons and meetings on the 14th. Dr. Frank A. Farmer is general chairman.

Scientific and technical exhibits will be features of the meeting. All available space has been taken for the technical exhibits and scientific exhibits are now being arranged. Dr. W. A. McGee, chairman, requests that all doctors interested in presenting scientific exhibits communicate with him promptly at 1001 West Franklin Street, Richmond 20, as space for these is limited.

Dean of School of Medicine, Medical College of Virginia.

Dr. Harvey B. Haag, professor of Pharmacology at the College, has been named dean of the School of Medicine of the Medical College of Virginia, and will enter upon his new duties July 1, succeeding Dr. J. P. Gray who resigned last fall. Dr. Haag will also continue as professor of pharmacology.

Department of Health Change.

Effective May 1, Surry County was joined to Sussex, Prince George and Dinwiddie Counties, creating the Sussex-Prince George-Dinwiddie-Surry Health District with headquarters at Stony Creek, Virginia. Dr. Francis J. Clements is the Health Officer.

To Head Richmond Tuberculosis Work.

Dr. C. Howe Eller, Richmond City Health Director, has appointed Dr. Carl W. LaFratta as head of the Bureau of Tuberculosis Control and Director of Pine Camp Hospital, as of May 1. Upon the resignation of Dr. G. C. Godwin, who has left Virginia, the two offices were combined. In his new position, Dr. LaFratta will have charge of the city's entire tuberculosis program, including the clinic which will soon occupy its new quarters at 1001 East Clay Street. Dr. William S. Burton, recently one of the three resident physicians at Pine Camp, will be Dr. LaFratta's assistant.

Virginia Academy of Science.

At the meeting of the Academy in Charlottesville early in May, Dr. Sidney S. Negus, head of the department of Chemistry of the Medical College of Virginia, was named president-elect to take office in 1948. Dr. Jesse W. Beams of the University of Virginia was installed as president for the coming year. Dr. E. C. L. Miller of Richmond was re-elected secretary-treasurer.

"Bond-A-Month" Savings Plan.

The average doctor needs a "bullet-proof" investment, and the United States has provided it in Savings Bonds. We all know that, but just to make it available isn't enough. Most doctors need something more. In business matters they need a string tied around a finger. The Government is offering this to them in the new Bond-a-Month Plan. Your bank ties the string, gives it a yank every month. And all the doctor has to do is leave it there. As to planning his future, once the doctor has invested in Bond-a-Month, he *can* give all his attention to his important work.

The U. S. Department of Commerce has made studies of doctors' incomes, based on reports of a sample of the 129,000 men and women in private practice in 1940. The studies show that the income rises slowly to a maximum in the early 50's and then starts dropping. From 35 to 54 is the real money-making period.

At 35, most doctors have begun to pay off their starting-in-business debts, have built up a small neighborhood practice and are becoming known. Their practice grows with ability. By the time they are 54, other doctors, young and vigorous, have come

XUM

in with new methods, machines, theories. They make inroads into the established practice of the veteran. And somehow, without the doctor's really knowing why, the bank balance doesn't hold up the way it used to.

Bond-a-Month opens systematic saving through Government bonds to anyone with income and a checking account in a bank. Until now this was available only through Payroll Savings. It operates this way:

The depositor who wishes to buy a bond each month signs a card authorizing the bank to deduct the purchase price from his checking account. The bank issues the bonds and delivers them to the customer monthly. The periodic bank statement shows payment for the bonds.

And from the first and the only time the doctor signs his authorization card, he has nothing else to do except open the envelopes the bank sends him with the bonds inside.

Drs. Barnett and Buxton.

Dr. T. Neill Barnett of Richmond announces that Dr. Ernest P. Buxton, Jr., recently returned from Service, is again associated with him in the practice of Internal Medicine and Gastroenterology. Their offices are at 707 Medical Arts Building.

News from University of Virginia Department of Medicine.

Dr. Oscar Swineford, Jr., Professor of Practice of Medicine, addressed the Norfolk County Medical Society on April 21st, on the "Management of Asthma." He also took part in a symposium on "The Management of Hay Fever" at the Southwest Allergy Forum in Shreveport, Louisiana, on March 31st.

Dr. Fletcher D. Woodward, Professor of Otolaryngology, has recently returned from St. Louis where he served on the examining board of the American Board of Otolaryngology. He also attended the special society meetings there after the Board examinations.

On May 12th, Dr. H. B. Mulholland, Professor of Practice of Medicine, spoke at the second annual meeting sponsored by the Public Health and Safety Committee of the Arlington Chamber of Commerce. His subject was "Virginia's Problem of Health and Medical Care."

Dr. Edward H. Williams,

Who was connected with the medical staff of Westbrook Sanatorium, Richmond, before entering the Service, has located in Miami, Florida, with offices in the Postal-Pacific Building, where he has resumed practice.

New Motion Picture Available.

"Folvite-Folic Acid in the Treatment of Anemia", a new motion picture, in 16 mm. sound and color with a running time of twenty minutes, is now available without charge to professional groups. Address your request to Film Library, Lederle Laboratories Division, American Cyanamid Company, 30 Rockefeller Plaza, New York 20, N. Y.

Spring Graduate Course of Gill Memorial Hospital.

At the twentieth annual spring graduate course of the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, which was completed on April 12th, there was a registration of three hundred and fifty physicians and their wives. They came from nearly every state in the union, various parts of Canada, and from several foreign countries, including Honolulu, Scotland and Portugal. Honor guests were Dr. A. J. Ballantyne, Professor of Ophthalmology, Glasgow, Scotland, and Dr. Chester S. Keefer, Professor of Medicine, Boston Medical School, Boston, Massachusetts.

Married.

Dr. William Walker Butzner, Fredericksburg, and Miss Catherine Tob Beltzhoover, Charlestown, W. Va., May 10th. Dr. Butzner is a graduate in medicine of the University of Virginia.

Lt. (jg) Austin Ingram Dodson, Jr., MC., USNR., Richmond, and Miss Dorothy Carrol Stubblefield, Old Hickory, Tenn., May 24th. He is a graduate of the Medical College of Virginia in 1946, and has just completed an internship at Vanderbilt University Hospital.

The American Congress of Physical Medicine

Will hold its twenty-fifth annual scientific and clinical session September 2-6 inclusive, at the Hotel Radisson, Minneapolis. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual in-

XUM

struction courses will be held September 2, 3, 4 and 5. These courses will be open to physicians and the therapists registered with the American Registry of Physical Therapy Technicians.

For information concerning the convention and the instruction course, address the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

Dr. Thomas F. Wheeldon,

Richmond, was elected Middle Atlantic regional vice-president of the Associated Harvard Clubs at the recent convention in Milwaukee.

Dr. Morgan B. Raiford,

Franklin, is now at the Graduate School of Medicine, University of Pennsylvania, where he has been with the Department of Ophthalmology since October 1946. He will begin the Spaeth residency in ophthalmology on June 1st and will act as assistant instructor in neuro-ophthalmology during the coming year.

The Virginia Obstetrical and Gynecological Society

Visited New York City on April 28 and 29 for its annual Travel Clinic. The day of April 28 was spent at the Sloane Hospital for Women at Columbia University, and the following day at the Woman's Hospital. Very interesting clinics were presented, and timely subjects were chosen for round table discussions. A dinner was held on the evening of April 28 for the twenty-seven members present and guests from the Staffs of the two hospitals visited. Dr. L. L. Shamburger, of Richmond, is president, and Dr. W. D. Suggs, of Richmond, is secretary.

Dr. Russell N. Snead,

Class of March '43, Medical College of Virginia, will locate for general practice at Columbia about July 1st. He has recently completed four years service in the United States Navy.

Dr. Edward M. Holmes, Jr.

Has become assistant health director of the Richmond Health Department, effective June 1st. He has recently been director of venereal disease control of the State Department of Health.

Virginia Society of Ophthalmology and Otolaryngology.

The twenty-eighth annual meeting of this Society was held at The Cavalier, Virginia Beach, May 10th, under the presidency of Dr. Thomas E. Hughes, Richmond. The following scientific program was presented: A Review of Advances in Ophthalmic Surgery During World War II by Dr. James N. Greear, Jr., Washington, D. C.; The Treatment of Nasal Sinus Conditions as Related to the Eye by Dr. Henry M. Goodyear, Cincinnati, Ohio; Contact Lenses—Motion Picture by Dr. A. A. Burke, Norfolk; Rhinosporidiosis of the Conjunctiva by Dr. Meade Edmunds, Petersburg, and Dr. Regena Beck, Richmond; The Use of Soluble Gauze in Otolaryngology by Drs. Fletcher Woodward and Thomas Holt, Charlottesville; Recent Developments in Intracapular Cataract Surgery Based on the Observation of 250 cases by Drs. E. G. Gill and G. H. Landers, Roanoke; Sinusitis by Dr. Richard O. Smith, Pulaski; Ocular Lesions in Metabolic Diseases by Dr. I. S. Tassman, Philadelphia; Ophthalmology Corneal Transplant, Norman S. Cutler Implant by Dr. Luther Brawner, Richmond; and Otolaryngology Arytenoidectomy for Bilateral Recurrent Nerve Paralysis by Dr. Woodward.

Dr. Fred E. Hamlin, Roanoke, was installed as president, and the following officers were elected: president-elect, Dr. Wallace Gill, Richmond; vice-president, Dr. Cuthbert Tunstall, Charlottesville; and secretary-treasurer, Dr. F. H. McGovern, Danville (re-elected). The 1948 meeting will be held in Winchester.

Nurses in VA Hospitals in Virginia

Will benefit by four major policy changes within the agency's medical service.

These changes, according to the Richmond branch office of VA, involve:

1. Creation of professional standards boards to evaluate the qualifications of nurses for appointment to nursing service, as physician boards now evaluate qualifications of doctors.

2. New regulations revising the promotion procedure for nurses in VA hospitals so more proficient nurses may be promoted to positions in line with their abilities.

3. Establishment of a rotation policy transferring nurses in isolated VA hospitals to hospitals with teaching units so they may keep abreast of the latest

XUM

professional techniques and modern nursing practices. Nurses become eligible for transfer rights after four years with VA.

4. A complete revision of nursing policies to increase the degree of nursing care given each veteran-patient.

Veterans Administration recently liberalized regulations for nurses regarding uniforms, so that now they may wear white uniforms and capes of their own choice. Previously nurses were required to wear regulation VA uniforms with black bands denoting rank.

News from Duke University, School of Medicine.

Dr. W. Henry Hollinshead, Professor of Anatomy, Duke University School of Medicine, has accepted the appointment of Professor of Anatomy, Mayo Foundation and Graduate School of Medicine, University of Minnesota, Rochester, Minnesota. In this position he will organize and head a Department of Anatomy which is being established by the Mayo Clinic and will continue his research upon the peripheral nervous system and mechanisms in the reflex control of respiration and blood pressure.

Dr. Hollinshead is one of the original staff of the Duke University School of Medicine, having been a member of the Department of Anatomy since 1930. He will assume his new duties July 1.

Doctors Needed in Rural Communities.

A number of inquiries have come to this office for doctors in rural communities. If interested in such, please communicate with this journal, 1200 East Clay Street, Richmond 19. *(Adv.)*

For Sale.

GE X-ray, Model 1775; 30 ma; 85 KVP, table with Bucky. In excellent working condition. James P. King, M.D., Radford, Va. *(Adv.)*

Wanted—

Assistant physicians for state mental hospital. Good salary. Full maintenance for single man. Brick cottage, telephone, water, lights, laundry for married. Replies confidential. Write Dr. Ira C. Long, Superintendent, State Hospital, Goldsboro, N. C. *(Adv.)*

Qualified Obstetrician,

Virginian, will consider proposal relative to association with an obstetrician or with a group. Replies treated confidentially. Address "Obstetrician", care this journal, 1200 East Clay Street, Richmond 19, *(Adv.)*

Wanted—

A young doctor for a junior partner; country practice; good salary plus commission. Address "Doctor", care this journal, 1200 East Clay Street, Richmond 19. *(Adv.)*

Wanted.

Laboratory Technician for small clinic in small town in southside Virginia. Salary attractive. Write or call Dr. K. S. Freeman, Kenbridge, Virginia. *(Adv.)*

OBITUARIES

Dr. Henry Rolfe DuPuy,

Winchester, died May 3rd. He was forty years of age and a graduate of the Department of Medicine, University of Virginia, in 1932. Dr. DuPuy practiced for sometime in Martinsburg, West Virginia, before locating in Winchester. He had been a member of the Medical Society of Virginia for several years. His wife and two daughters survive him.

Dr. Otis Hillsman Whitlock,

Richmond, was burned to death in his home on May 9th. He was a native of Powhatan County and sixty years of age. Dr. Whitlock graduated from the former University College of Medicine, Richmond, in 1911. He practiced for sometime in Powhatan County before coming to Richmond. He had been a member of the Medical Society of Virginia for thirty-six years. His wife and a son survive him.